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2000

Cape Cod 2000

RTP 2k

Regional Transportation Plan

Preserving & Enhancing the Cape's Transportation System

TECHNICAL APPENDIX

CAPE COD COMMISSION
Transportation Staff

Prepared on behalf of the

CAPE COD METROPOLITAN PLANNING ORGANIZATION

Massachusetts Executive Office of Transportation & Construction
Massachusetts Highway Department
Cape Cod Regional Transit Authority
Cape Cod Commission

in cooperation with

Massachusetts Department of Environmental Protection
United States Department of Transportation Federal Highway Administration
United States Department of Transportation Federal Transit Administration

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Air Quality

- Conformity with Clean Air Act Amendments
- Mobile 5 Inputs and Tables

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Cape Cod 2000 Regional Transportation Plan

APPENDIX

DETERMINATION OF AIR QUALITY CONFORMITY

Introduction

This document presents information and analyses for the air quality conformity determination for the 2000 Regional Transportation Plan of the Cape Cod MPO, as required by Federal Regulations 40 CFR Part 93, and the Massachusetts Conformity Regulations (310 CMR 60.03). This information and analyses include: regulatory framework, conformity requirements, planning assumptions, mobile source emissions budgets, and conformity consultation procedures.

Legislative Background

Eastern Massachusetts has historically been classified as serious nonattainment for ozone. With this nonattainment classification, the 1990 Clean Air Act Amendments (CAAA) require the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation, to achieve attainment of the ozone standard by 1999.

The CAAA and the Commonwealth acknowledge that mobile sources are among the major sources of emissions of VOCs and NOx. Prior to the 1990 amendments, the majority of pollution control measures focused on stationary industrial sources. The Massachusetts 1993 Emissions Inventory indicates that on-road mobile sources emit approximately 28% of the total VOCs and 43% of the total NOx in the state.

The Commonwealth revised its State Implementation Plan (SIP) which was submitted to the United States Environmental Protection Agency (EPA) on November 15, 1993. This SIP revision is a strategy of programs to show Reasonable

Further Progress of a 15% reduction of VOCs in 1996 toward attainment of the National Ambient Air Quality Standards (NAAQS) for ozone in 1999. A large number of the programs target mobile sources, including an enhanced inspection and maintenance program, reformulated gasoline, and California Low Emissions Vehicle Program. It also included a VOC mobile source emission budget for 1996.

A second major revision to the SIP was submitted to EPA in December 1994. This submission included programs to provide a further reduction of 9% in NOx emissions. NOx reduction credits will be taken from stationary sources through NOx Reasonably Available Control Technology (RACT), and from mobile sources through the Enhanced Inspection and Maintenance Program, the California Low Emission Vehicle Program, and the Tier I Federal Vehicle Standards. A NOx emission budget for 1999 and each year thereafter and a VOC emission budget for 1999 and each year thereafter were included in this submission. In addition, the 1996 VOC budget was revised.

In March of 1997, DEP submitted a 1996 Rate of Progress Report describing the progress to date on the SIP commitments that were submitted to EPA in 1993 and 1994. At that time they had the opportunity to make any revisions and corrections to programs that were submitted to ensure that the ozone air quality standards will be achieved by 1999. As part of the 1996 Progress Report, DEP revised the mobile source emission budget. Previously, the mobile source budget was developed using the Highway Performance Monitoring System which uses traffic count data from spot locations along different functional classes of roadway to determine vehicle miles of travel in the region. The new mobile source emission budget was calculated using transportation demand models maintained by the regional planning agencies. In addition, some inputs to the emissions model were changed. They will be detailed in later sections of this conformity determination.

On October 1, 1998, DEP submitted to EPA a technical correction to the Massachusetts SIP for Ozone, which included a 2003 mobile source emission budget. This budget was found adequate for conformity purposes by EPA on February 19, 1999. This budget supplemented the July 27, 1998 submittal of the Commonwealth's Ozone Attainment Demonstration Plan (a control strategy SIP). In this situation, regulations require that conformity be re-determined for transportation plans and TIPs within 18 months of the submittal of the control strategy SIP (July 27, 1998).

Conformity Regulations

The CAAA revised the requirements for designated Metropolitan Planning Organizations (MPOs) to perform conformity determinations by ozone non-attainment area for their Transportation Plans and Transportation Improvement Programs (TIPs). Section 176 of the CAAA defines conformity to a State Implementation Plan to mean conformity to the plan's purpose of eliminating or

reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of the standards. The Cape Cod MPO must certify that all activities outlined in the Cape Cod 2000 Regional Transportation Plan:

- will not cause or contribute to any new violation of any standard in any area;
- will not increase the frequency or severity of any existing violation of any standard in any area; and
- will not delay the timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The EPA issued final conformity regulations in the November 24, 1993 Federal Register and Massachusetts DEP issued new conformity regulations effective December 30, 1994. They set forth requirements for determining conformity of Transportation Plans, Transportation Improvement Programs, and individual projects. The federal conformity regulations were amended on August 15, 1997. The requirements of the conformity analysis are summarized below and will be explained in detail in this conformity determination:

Conformity Criteria
- Horizon Years
- Latest planning assumptions
- Latest emission model used
- Timely implementation of transportation control measures (TCMs)
- Conformity in accordance with the consultation procedures and SIP revisions
- Public Participation Procedures
- Financially Constrained Document

Procedures for Determining Regional Transportation Emissions

The Conformity Test
- Consistent with emission budgets set forth in SIP

In addition, the regulations set specific requirements for different time periods depending on the timeframe of the Commonwealth's SIP submittals to EPA. These periods are defined below:

> ***Control Strategy Period:*** Once a control strategy SIP has been submitted to EPA, EPA has to make a positive adequacy determination of the mobile source emission budget before such budget can be used for conformity purposes. The conformity test in this period is consistency with the mobile source emission budget.

Maintenance Period is the period of time beginning when the Commonwealth submits and EPA approves a request for redesignation to an attainment area. This period lasts for 20 years. The conformity test in this period is consistency with the mobile source emission budget.

The baseline vs. action test, and the "less than 1990" emission test were required under the November 1993 conformity regulations. The 1997 Conformity Amendments have eliminated the emission reduction test once a Control Strategy SIP's mobile source emission budget has been deemed adequate by EPA. Conformity of this amendment will be showing consistency with the mobile source emission budget in the Eastern Massachusetts ozone nonattainment area.

CONFORMITY DETERMINATION CRITERIA

This conformity determination has been prepared in accordance with 40 CFR Part 93 - Transportation Conformity Rule Amendments: Flexibility and Streamlining; Final Rule. It shows that Cape Cod 2000 Regional Transportation Plan has been prepared following all the guidelines and requirements of the rule.

Horizon Year Requirements

Horizon years for regional model analysis have been established following 40 CFR 93.106(a) of the Federal Conformity Regulations. The years for which the model was run are shown below.

- 1990 - Milestone Year - This year was established as the original base year in the SIP for calculation of emission reductions of VOCs and NOx (This year has become outdated and is no longer represented in the modeling).
- 1997 - Milestone Year - This year is being used as the new base year for calculation of emission reductions of VOCs and NOx
- 2003 - Milestone Year - Attainment year
- 2010 - Analysis Year
- 2020 - Analysis Year
- 2025 - Horizon Year - last forecast year of transportation plan

Latest Planning Assumptions

Population, Employment and Traffic Assumptions

Section 93.110 of the Federal Conformity Regulations outlines the requirements for the most recent planning assumptions that must be in place at the time of the conformity determination. Assumptions must be derived from the estimates of current and future population, employment, travel, and congestion most recently developed by the MPO. Analyses for the Cape Cod 2000 Regional Transportation Plan are based on U.S. Census data and information obtained from the Cape Cod Commission and Massachusetts Highway Department. The following is a list of the sources of data that have been used for Regional Transportation Plan analyses:

Population: Summary Tape Files 1A and 3A data for Massachusetts from the 1990 *Census of Population and Housing*.

- **Employment:** Town-level employment data from the Massachusetts Department of Employment and Training. Census Block Group Employment Data from the Caliper Data CD of detailed *Census Block Group Data on Population and Housing*, 1997. Estimates of employment at the zip code level from *ZIP Code Business Patterns* CD, US Department of Commerce, 1997. Additional employment and land use spatial data incorporated from 1990 and 1999 MacConnell Land use Data and town Parcel Maps.
- **Population Forecasts:** Cape Cod Commission population forecasts based on 1980 to 1994 Cape Trends, October 1996. Additional population forecasts analyzed from the Caliper Data CD of detailed Census Block Group Data on population and Housing, 1997.
- **Employment Forecasts:** Cape Cod Commission employment forecasts based on 1980 to 1994 Cape Trends and Land Use Data, October 1996. Additional employment forecasts analyzed and incorporated from the Caliper Data CD of detailed *Census Block Group Data on Population and Housing*, 1997.
- **Households:** Summary Tape Files 1A and 3A data for Massachusetts from the 1990 Census for Population and Housing.
- **Household Forecasts:** Cape Cod Commission Household forecasts based on 1980 to 1994 Cape Trends, October 1996.
- **Vehicle Ownership:** Summary Tape File 3A data for Massachusetts from the 1990 US Census of Population and Housing. Census Transportation Planning Package from the U.S. Census 1990.
- **Traffic Volumes:** Massachusetts Highway Department 1999 Traffic Volumes for the Commonwealth of Massachusetts. Additional Traffic Counts provided by the Cape Cod Commission traffic counting program 1984-2000.
- **Project Level Data:** Obtained from the responsible implementing agency.

Transit Operating Policy Assumptions

The operating policies and assumed transit ridership have not substantially changed since the conformity determination prepared for the 1997 Transportation Plan and its 1998 and 1999 amendments.

Transit service and ridership statistics presented in the Regional Transportation Plan and used in its analysis were obtained from the Cape Cod Regional Transit Authority, the Woods Hole and Martha's Vineyard Steamship Authority, Plymouth and Brockton Street Railway Company and other sources.

Emission Inventory Assumptions

This will be determining conformity with the Massachusetts State Implementation Plan (SIP) mobile source emission budgets submitted in March of 1997 and October of 1998 for VOC and NOx. The VOC mobile source emission budget for 2003 for the Massachusetts Eastern Nonattainment Area has been set at 117.118 tons per summer day and the 2003 mobile source budget for NOx is 243.328 tons per summer day.

The Cape Cod MPO VOC and NOx emissions will be combined with the following MPOs to show conformity with the SIP in the Eastern Massachusetts Ozone Nonattainment Area:

- Central Massachusetts MPO
- Merrimack Valley MPO
- Boston MPO
- Montachusett Region MPO
- Northern Middlesex MPO
- Old Colony MPO
- Southeastern Region MPO
- Martha's Vineyard Commission*
- Nantucket Planning and Economical Development Commission*

* These regions these Regional Planning Agencies (RPAs) represent do not contain any urbanized areas, but are considered to be MPOs for planning purposes.

The Massachusetts Highway Department (MassHighway), on behalf of the Executive Office of Transportation and Construction (EOTC), compiled the results from all the MPOs in the Eastern Massachusetts ozone nonattainment area. The air quality analysis has been finalized for all of the MPOs and the EOTC has made the final conformity determinations for the ozone nonattainment area.

Latest Emission Model

Emission factors used for calculating emission changes were determined using MOBILE 5AH, the model used by DEP in determining the mobile source budget. Emission factors for motor vehicles are specific to each model year, pollutant type, temperature and travel speed. MOBILE 5AH requires a wide range of input parameters including inspection and maintenance program information and other data such as anti-tampering rates, hot/cold start mix, emission failure rates, vehicle fleet mix, fleet age distribution, etc.

The input variables used in this conformity determination were received from DEP. The inputs used for the 1990 base case existing network were the same as those used in determining the 1990 Emissions Inventory for the Commonwealth of Massachusetts. The inputs used for the years 1999 through 2020 were also received from DEP and include information on programs that were submitted to EPA in 1993, 1994, 1997, 1998 and 1999 as the control strategy for the Commonwealth to obtain ambient air quality standards for 1999.

Timely Implementation of Transportation Control Measures

Transportation control measures (TCMs) have been required in the SIP in revisions submitted to EPA in 1979, and 1982. All SIP TCMs have been accomplished through construction or through implementation of ongoing programs. Within that strategy, there are no Cape Cod-specific TCM projects. They do call for traffic flow improvements to reduce congestion and, therefore, improve air quality. The RTP includes projects for this purpose.

DEP has submitted their strategy of programs to show Reasonable Further Progress of a 15% reduction of VOCs in 1996 and the further 9% reduction of NOx toward attainment of the National Ambient Air Quality Standards (NAAQS) for ozone in 1999 to EPA. Within that strategy, there are no specific TCM projects. They do call for traffic flow improvements to reduce congestion and, therefore, improve air quality. Other transportation-related projects that have been included in the SIP control strategy are listed below:

- Enhanced Inspection and Maintenance Program
- California Low Emission Vehicle Program
- Reformulated Gasoline for On and Off-Road Vehicles
- Stage II Vapor Recovery at Gasoline Refueling Stations
- Tier I Federal Vehicle Standards

Consultation Procedures

The final conformity regulations require that the MPO must make a conformity determination according to consultation procedures set out in the federal and state regulations and it must also follow public involvement procedures established by the MPO under federal metropolitan transportation planning regulations.

The consultation requirements of both the state and federal regulations require that the Cape Cod MPO, EOTC/MassHighway, Mass. DEP, EPA - Region 1 and FHWA - Region 1 consult on the following issues:

- Selection of regional emissions analysis models including model development and assessing project design factors for modeling.
- Selection of inputs to the most recent EPA-approved emissions factor model.
- Identification of regionally significant projects to be included in the regional emissions analysis.
- Identification of projects which have changed in design and scope.
- Identification of exempt projects.
- Identification of exempt projects that should be treated as non-exempt because of adverse air quality impacts.
- Identification of the latest planning assumptions and determination of consistency with SIP assumptions.

These issues have all been addressed through consultation of the agencies listed above.

Public Participation Procedures

Title 23 CFR Section 450.324 and 40 CFR 90.105(e) require that the development of the Plan, TIP, and related certification documents provide an adequate opportunity for public review and comment.

Section 450.316(b) establishes the outline for MPO public participation programs. The Cape Cod MPO's public participation program was formally adopted on August 28, 1997. The development and adoption of this program conforms to the requirements of the section. It guarantees public access to the Plan, provides for public notification of the availability of the Plan and the public's right to review the

document and comment thereon, and provides a 30-day public review and comment period prior to the adoption of the Plan and related certification documents by the MPO.

The draft of the Cape Cod 2000 Regional Transportation plan was mailed and distributed beginning November 3, 2000 to the following parties in each Cape Cod town: CCJTC member, CCC Member, CCRTA Member, and Town Administrator/ Executive Secretary/Manager. In addition, this document was delivered to the Executive Office of Transportation and Construction (EOTC), Massachusetts Highway Department (MHD) District 5 Highway Director, Federal Highway Administration (Boston Office), one main library in each town, the Assembly of Delegates, and the Barnstable County Commissioners. At their meeting on December 8, 2000, the Cape Cod Joint Transportation Committee (CCJTC), advisory committee to the MPO, will take a vote regarding recommendation for Cape Cod MPO endorsement of the document. At their meeting on December 14th, the Cape Cod Commission may vote to authorize their Chair to endorse the document at the January 11, 2001 MPO meeting. At their meeting on December 2000 the Cape Cod Regional Transit Authority may vote to authorize their Chair to endorse the document at the January MPO meeting.

Financial Consistency

Title 23 CFR Section 450.324 and 40 CFR 93.108 require the Cape Cod 2000 Regional Transportation Plan, to "be financially constrained by year and include a financial plan that demonstrates which projects can be implemented using current revenue sources and which projects are to be implemented using proposed revenue sources."

The Cape Cod 2000 Regional Transportation Plan and its latest conformity determination is financially constrained to projections of federal and state resources reasonably expected to be available during the appropriate time-frame. Projections of federal resources are based upon the estimated apportionment of the federal authorizations contained in TEA-21, as allocated to the region by the state or as allocated among the various MPOs according to federal formulae or MPO agreement. Projections of state resources are based upon the allocations contained in the current Transportation Bond Bill and historic trends. Therefore, the Cape Cod 2000 Regional Transportation Plan substantially complies with federal requirements relating to financial planning.

PROCEDURES FOR DETERMINING REGIONAL TRANSPORTATION EMISSIONS

The federal conformity regulations set forth specific requirements for determining transportation emissions. A summary of these requirements and the procedures used for this plan amendment are summarized below:

Demographic, Employment and Transportation Demand

Specific sources of population, employment and traffic information used in the Transportation Plan have been listed above. Chapter 3 of the Cape Cod 2000 Regional Transportation Plan presents conditions and characteristics of the existing regional transportation system.

Chapter 4 of the Cape Cod 2000 Regional Transportation Plan discusses trends and changing demands that various components of the transportation system will serve in the future years. It discusses the future roles of the highways, transit, pedestrian and bicycle travel and water travel. It also describes the development and evaluation of alternative scenarios that were analyzed to help determine the final recommendations of the 2000 Transportation Plan.

Chapters 6 and 7 of the Cape Cod 2000 Regional Transportation Plan outline the specific project recommendations that are set forth in the Transportation Plan for the Cape Cod MPO Region through the year 2025. The recommended projects have been included in the Base and Action networks for the analyses performed for the latest conformity determination of this transportation plan amendment.

Only regionally significant transportation projects are required to be included in the regional modeling efforts. The final federal conformity regulations define "regionally significant" as follows:

> ***Regionally significant:*** a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sport complexes, etc., or transportation terminals as well as most terminals themselves) and would be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

In addition specific projects have been exempt from regional modeling emissions analysis. The categories of projects include:

- Intersection channelization projects,
- Intersection signalization projects at individual intersections,
- Interchange reconfiguration projects,
- Changes in vertical and horizontal alignment,
- Truck size and weight inspection stations, and
- Bus terminals and transfer points.

The 2000 Conformity Amendments have allowed traffic signal synchronization projects to be exempt from conformity determinations prior to their funding, approval or implementation. However, once they are implemented, they must be included in determinations for future plans and TIPs.

The Baseline and Action Networks are composed of projects proposed in the approved Transportation Improvement Programs, and the 2000 Transportation Plan. Projects in the Baseline networks consist of all in-place regionally significant and transportation demand management projects plus all projects where one of the following steps has occurred within the last three years:

- Comes from first year of the previously conforming TIP,
- Completed the NEPA process, or
- Currently under construction or are undergoing right-of-way acquisition.

The following projects were included in the 2003 No-Build Network
(Although construction is complete and both roads are operational, they were not complete in 1997 and not included in the 1997 Base year network)
- Hadaway Road
- Enterprise Road Extension

The following project was included in the 2003 Build-Network
- Hadaway Road
- Enterprise Road Extension
- Exit 9 Interchange improvements

The following projects were included in the 2025 No build Network
- Exit 9 interchange improvements
- Hadaway Road
- Enterprise Road Extension

The following projects were included in the 2025 Build-Network
- Route 132 Boulevard
- Exit 6 1/2 on Mid Cape Hwy (State Rt. 6)

Changes in Project Design Since the Last Conformity Determination Analysis

The Commonwealth requires that any changes in project design from the previous conformity determination for the region be identified. The last conformity determination was performed on the 1999 Amendment to the 1997 Transportation Plan. Changes which have occurred since this last conformity determination are as follows:

- Conformity must be performed using the newly submitted 2003 mobile source emission budget.
- Conformity must be performed using new emission factors submitted by DEP, which reflect the latest assumptions (i.e., progress of the I/M program, etc.).

Model Specific Information

40 CFR Part 93.111 of the federal regulations outlines requirements to be used in the network-based transportation demand models. These requirements include modeling methods and functional relationships to be used in accordance with acceptable professional practice and reasonable for purposes of emission estimation. The Cape Cod MPO has used the methods described in the conformity regulations in the analysis of this Cape Cod 2000 Regional Transportation Plan.

Highway Performance Monitoring System Adjustments

As stated in guidance by EPA, all areas of serious ozone and carbon monoxide nonattainment must use the Federal Highway Administration's Highway Performance Monitoring System (HPMS) to track vehicle miles of travel (VMT) prior to attainment to ensure that the state is on line with commitments made in reaching attainment of the ambient air quality standards by the required attainment dates. The Massachusetts Highway Department (MassHighway) provides the HPMS information to DEP. DEP used this information in setting mobile source budgets for VOCs and NOx in all SIP revisions prior to 1997. DEP has since revised its VOC and NOx budgets using transportation demand model runs. However, the models must still be compared to HPMS data since HPMS is at present the accepted tracking procedure as outlined in the regulations.

The conformity regulations require that all model based VMT be compared with the HPMS VMT to ensure that the region is in line with VMT and emission projections made by DEP. An adjustment factor has been developed which compares the 1997 HPMS VMT to the 1997 transportation model VMT. This adjustment factor is then applied to all modeled VOC and NOx emissions for years 2003 through 2025 to ensure consistency with EPA accepted procedures.

1997 HPMS VMT / 1997 Modeled VMT	= Adjustment Factor
6,027,000 HPMS Vehicle Miles of Travel / 6,719,259 Modeled Vehicle Miles of Travel	= 0.897 Adjustment Factor for VOC and NOx

THE CONFORMITY TEST

Consistent with emission budgets set forth in SIP

The Cape Cod MPO has conducted an air quality analysis of the Cape Cod 2000 Regional Transportation Plan. The purpose of the analysis is to evaluate the plan's air quality impacts on the State Implementation Plan (SIP). The analysis evaluates the change in ozone precursor (VOCs and NOx) emissions and carbon monoxide emissions due to implementation of the Cape Cod 2000 Regional Transportation Plan. The modeling procedures and assumptions used in this air quality analysis follow the EPA's final conformity regulations issued on August 15, 1997. They are also consistent with procedures used by the Massachusetts Department of Environmental Protection to develop Massachusetts' 1990 Base Year Emission Inventory, 1996 Reasonable Further Progress Plan, the Post-1996 Reasonable Further Progress Plan, 1996 Rate of Progress Report, and the Ozone Attainment Demonstration for the SIP. All consultation procedures were followed to ensure that a complete analysis of the Cape Cod 2000 Regional Transportation Plan was performed with consistency with the SIP.

The primary test to show conformity with the SIP is to show that the Air Quality Conformity of the Cape Cod 2000 Regional Transportation Plan is consistent with the emission budgets set forth in the SIP. The Massachusetts Reasonable Further Progress Plan (RFP) has been deemed complete by the EPA in a letter dated June 5, 1997. EPA has made a determination that the 15% RFP SIP submittal contains an adequate mobile source emissions budget to conduct conformity determinations using the conformity criteria. In addition, the 2003 mobile source emission budget was found adequate for conformity purposes by EPA on February 19, 1999.

The VOC mobile source emission budget for 2003 for the Massachusetts Eastern Nonattainment Area has been set at 117.118 tons per summer day and the 2003 mobile source budget for NOx is 243.328 tons per summer day.

The total tons per day of VOCs and NOx for the Eastern Massachusetts nonattainment area from all of the analyzed scenarios are shown in Tables 1 and 2. The results of the air quality analysis demonstrates that the VOC and NOx emissions from all Action scenarios are less than the Massachusetts VOC and NOx emission budgets.

TABLE 1
VOC Emissions Estimates for the Eastern Massachusetts Ozone Nonattainment Area (all emissions in tons per summer day)

Year	Cape Cod Action Emissions	Action Emissions	Budget	Difference (Action-Budget)
1997	10.8881	219.059	n/a	n/a
2003	6.1763	114.974	117.118	-2.144
2010	5.3279	104.510	117.118	-12.608
2020	5.5456	110.221	117.118	-6.897
2025	5.7628	112.309	117.118	-4.809

TABLE 2
NOx Emissions Estimates for the Eastern Massachusetts Ozone Nonattainment Area (all emissions in tons per summer day)

Year	Cape Cod Action Emissions	Action Emissions	Budget	Difference (Action-Budget)
1997	16.3625	341.458	n/a	n/a
2003	11.9691	235.285	243.328	-8.043
2010	11.0302	224.007	243.328	-19.321
2020	11.3286	234.361	243.328	-8.967
2025	11.6176	236.618	243.328	-6.710

CONCLUSION

The Clean Air Act Amendments of 1990 established new requirements for transportation plans, programs, and projects. EPA published a final rule in the November 24, 1993 Federal Register which was last amended on August 15, 1997 providing procedures to be followed by the United States Department of Transportation in determining conformity of transportation plans, programs, and projects with the SIP.

The Cape Cod MPO has conducted an air quality analysis of the Cape Cod 2000 Regional Transportation Plan and its latest conformity determination. The purpose of the analysis is to evaluate the plan amendment's air quality impacts on the SIP. The analysis evaluates the change in ozone precursor emissions (VOCs, and NOx) due to the implementation of the Cape Cod 2000 Regional Transportation Plan. The modeling procedures and assumptions used in this air quality analysis follow EPA's and the Commonwealth's guidance and are consistent with the procedures used by the Massachusetts DEP to develop Massachusetts' 1990 Base Year Emissions Inventory, 1996 Reasonable Further Progress Plan, the Post-1996 Reasonable Further Progress Plan, 1996 Rate of Progress Report and the Ozone Attainment Demonstration for the SIP.

Eastern Massachusetts has historically been designated as a Serious ozone nonattainment area. Federal conformity regulations require that transportation plans, programs, and projects evaluate their impact on nonattainment areas. Eastern Massachusetts is made up of ten regional planning agencies (RPAs), therefore VOC and NOx emissions must be combined in order to compare the results to the conformity criteria.

EPA has found the base year emissions inventories, the 15% Plan, the 9% Plan, and the contingency submittal administratively and technically complete in a letter dated June 5, 1997. In addition, the 2003 mobile source emission budget was found adequate for conformity purposes by EPA on February 19, 1999. This establishes the new mobile source emission budgets for which the new conformity determinations will be based. In addition, EPA has made a conditional interim approval of the Massachusetts 15% Rate of Progress Report and Contingency Plan in a letter dated June 18, 1997.

Accordingly, the EOTC has found the emission levels from the Cape Cod 2000 Regional Transportation Plan in combination with the emission levels from the other RPAs in Eastern Massachusetts to be in conformance with the SIP according to conformity criteria. Specifically, the following conditions are met:

- The VOC emissions for the Action (build) scenarios are less than the 2003 VOC mobile source emission budget for analysis years 2003 through 2025.

- The NOx emissions for the Action (build) scenario are less than the 2003 NOx mobile source emission budget for analysis years 2003 through 2025.

In accordance with Section 176(c)(4) of the Clean Air Act as amended in 1990, the MPO for the Cape Cod Region has completed its review and hereby certifies that the Cape Cod 2000 Regional Transportation Plan and its latest conformity determination conditionally conforms with 40 CFR Part 93, and 310 CMR 60.03.

	VOC									
	1990		2000		2003		2010		2020	
idle		26.12		13.66		9.203		7.75		7.47
2	21990	22.287	22000	11.569	22003	6.259	22010	4.901	22020	4.662
3	31990	17.79	32000	9.183	32003	5.162	32010	4.047	32020	3.856
4	41990	12.766	42000	6.56	42003	3.901	42010	3.071	42020	2.935
5	51990	10.055	52000	5.174	52003	3.197	52010	2.53	52020	2.423
6	61990	8.369	62000	4.323	62003	2.747	62010	2.183	62020	2.095
7	71990	7.221	72000	3.75	72003	2.432	72010	1.941	72020	1.865
8	81990	6.543	82000	3.418	82003	2.235	82010	1.784	82020	1.715
9	91990	6.016	92000	3.16	92003	2.079	92010	1.659	92020	1.596
10	101990	5.58	102000	2.948	102003	1.949	102010	1.556	102020	1.497
11	111990	5.211	112000	2.769	112003	1.837	112010	1.468	112020	1.412
12	121990	4.893	122000	2.614	122003	1.739	122010	1.392	122020	1.339
13	131990	4.615	132000	2.479	132003	1.652	132010	1.325	132020	1.275
14	141990	4.369	142000	2.36	142003	1.575	142010	1.265	142020	1.218
15	151990	4.147	152000	2.253	152003	1.505	152010	1.212	152020	1.167
16	161990	3.946	162000	2.157	162003	1.44	162010	1.164	162020	1.12
17	171990	3.762	172000	2.069	172003	1.381	172010	1.12	172020	1.078
18	181990	3.592	182000	1.989	182003	1.327	182010	1.08	182020	1.04
19	191990	3.434	192000	1.914	192003	1.276	192010	1.043	192020	1.005
20	201990	3.305	202000	1.841	202003	1.225	202010	1.004	202020	0.967
21	211990	3.206	212000	1.777	212003	1.183	212010	0.968	212020	0.931
22	221990	3.115	222000	1.718	222003	1.143	222010	0.934	222020	0.899
23	231990	3.031	232000	1.663	232003	1.107	232010	0.903	232020	0.869
24	241990	2.953	242000	1.613	242003	1.073	242010	0.875	242020	0.841
25	251990	2.88	252000	1.566	252003	1.042	252010	0.849	252020	0.816
26	261990	2.812	262000	1.523	262003	1.013	262010	0.824	262020	0.792
27	271990	2.748	272000	1.482	272003	0.986	272010	0.801	272020	0.77
28	281990	2.688	282000	1.444	282003	0.961	282010	0.78	282020	0.749
29	291990	2.632	292000	1.409	292003	0.937	292010	0.76	292020	0.73
30	301990	2.579	302000	1.375	302003	0.914	302010	0.741	302020	0.711
31	311990	2.529	312000	1.344	312003	0.893	312010	0.724	312020	0.694
32	321990	2.481	322000	1.314	322003	0.873	322010	0.707	322020	0.678
33	331990	2.437	332000	1.286	332003	0.854	332010	0.692	332020	0.663
34	341990	2.394	342000	1.26	342003	0.836	342010	0.677	342020	0.649
35	351990	2.354	352000	1.235	352003	0.819	352010	0.663	352020	0.636
36	361990	2.316	362000	1.211	362003	0.803	362010	0.65	362020	0.623
37	371990	2.28	372000	1.188	372003	0.787	372010	0.638	372020	0.611
38	381990	2.246	382000	1.167	382003	0.773	382010	0.626	382020	0.599
39	391990	2.213	392000	1.146	392003	0.759	392010	0.615	392020	0.589
40	401990	2.182	402000	1.127	402003	0.745	402010	0.604	402020	0.578
41	411990	2.153	412000	1.108	412003	0.732	412010	0.594	412020	0.569
42	421990	2.125	422000	1.09	422003	0.72	422010	0.584	422020	0.559
43	431990	2.099	432000	1.073	432003	0.708	432010	0.575	432020	0.551
44	441990	2.073	442000	1.057	442003	0.697	442010	0.566	442020	0.542
45	451990	2.049	452000	1.041	452003	0.686	452010	0.558	452020	0.534
46	461990	2.026	462000	1.026	462003	0.676	462010	0.55	462020	0.527
47	471990	2.004	472000	1.012	472003	0.666	472010	0.542	472020	0.519
48	481990	1.982	482000	0.998	482003	0.656	482010	0.535	482020	0.512
49	491990	1.974	492000	0.993	492003	0.654	492010	0.533	492020	0.51
50	501990	1.966	502000	0.988	502003	0.651	502010	0.531	502020	0.508
51	511990	1.959	512000	0.984	512003	0.649	512010	0.529	512020	0.506
52	521990	1.952	522000	0.98	522003	0.647	522010	0.527	522020	0.504
53	531990	1.945	532000	0.976	532003	0.645	532010	0.525	532020	0.502
54	541990	1.94	542000	0.972	542003	0.643	542010	0.523	542020	0.501
55	551990	1.934	552000	0.969	552003	0.642	552010	0.522	552020	0.499
56	561990	1.98	562000	0.984	562003	0.651	562010	0.529	562020	0.506
57	571990	2.027	572000	0.999	572003	0.661	572010	0.536	572020	0.513
58	581990	2.073	582000	1.014	582003	0.671	582010	0.544	582020	0.519
59	591990	2.121	592000	1.03	592003	0.681	592010	0.551	592020	0.526
60	601990	2.168	602000	1.045	602003	0.691	602010	0.559	602020	0.533
61	611990	2.216	612000	1.061	612003	0.702	612010	0.567	612020	0.541
62	621990	2.264	622000	1.077	622003	0.712	622010	0.575	622020	0.548
63	631990	2.313	632000	1.094	632003	0.722	632010	0.582	632020	0.555
64	641990	2.361	642000	1.11	642003	0.733	642010	0.591	642020	0.563
65	651990	2.41	652000	1.127	652003	0.744	652010	0.599	652020	0.571

		NOx								
		1990		2000		2003		2010		2020
idle		10.24		8.15		6.483		5.77		5.63
2	21990	4.097	22000	3.259	22003	2.593	22010	2.308	22020	2.251
3	31990	3.939	32000	3.109	32003	2.482	32010	2.209	32020	2.157
4	41990	3.715	42000	2.906	42003	2.327	42010	2.073	42020	2.025
5	51990	3.555	52000	2.77	52003	2.221	52010	1.979	52020	1.934
6	61990	3.429	62000	2.667	62003	2.14	62010	1.906	62020	1.863
7	71990	3.326	72000	2.586	72003	2.074	72010	1.848	72020	1.806
8	81990	3.238	82000	2.518	82003	2.018	82010	1.798	82020	1.758
9	91990	3.161	92000	2.461	92003	1.971	92010	1.755	92020	1.716
10	101990	3.094	102000	2.411	102003	1.929	102010	1.718	102020	1.679
11	111990	3.034	112000	2.368	112003	1.892	112010	1.684	112020	1.646
12	121990	2.98	122000	2.329	122003	1.859	122010	1.654	122020	1.617
13	131990	2.932	132000	2.294	132003	1.829	132010	1.628	132020	1.59
14	141990	2.889	142000	2.263	142003	1.803	142010	1.604	142020	1.566
15	151990	2.85	152000	2.235	152003	1.778	152010	1.582	152020	1.545
16	161990	2.815	162000	2.21	162003	1.756	162010	1.562	162020	1.525
17	171990	2.783	172000	2.187	172003	1.737	172010	1.544	172020	1.508
18	181990	2.755	182000	2.167	182003	1.719	182010	1.528	182020	1.491
19	191990	2.729	192000	2.148	192003	1.702	192010	1.513	192020	1.477
20	201990	2.711	202000	2.135	202003	1.69	202010	1.502	202020	1.466
21	211990	2.704	212000	2.131	212003	1.684	212010	1.496	212020	1.46
22	221990	2.699	222000	2.127	222003	1.679	222010	1.491	222020	1.454
23	231990	2.694	232000	2.123	232003	1.675	232010	1.486	232020	1.45
24	241990	2.691	242000	2.121	242003	1.671	242010	1.482	242020	1.445
25	251990	2.688	252000	2.119	252003	1.667	252010	1.479	252020	1.442
26	261990	2.687	262000	2.117	262003	1.665	262010	1.477	262020	1.439
27	271990	2.686	272000	2.116	272003	1.663	272010	1.475	272020	1.437
28	281990	2.687	282000	2.116	282003	1.662	282010	1.474	282020	1.436
29	291990	2.688	292000	2.116	292003	1.661	292010	1.473	292020	1.435
30	301990	2.691	302000	2.117	302003	1.661	302010	1.473	302020	1.435
31	311990	2.695	312000	2.119	312003	1.662	312010	1.473	312020	1.435
32	321990	2.7	322000	2.121	322003	1.663	322010	1.474	322020	1.436
33	331990	2.705	332000	2.124	332003	1.666	332010	1.476	332020	1.438
34	341990	2.712	342000	2.128	342003	1.668	342010	1.479	342020	1.44
35	351990	2.72	352000	2.132	352003	1.672	352010	1.482	352020	1.443
36	361990	2.729	362000	2.138	362003	1.676	362010	1.485	362020	1.447
37	371990	2.74	372000	2.143	372003	1.681	372010	1.489	372020	1.451
38	381990	2.751	382000	2.15	382003	1.686	382010	1.494	382020	1.456
39	391990	2.764	392000	2.157	392003	1.692	392010	1.5	392020	1.461
40	401990	2.778	402000	2.165	402003	1.699	402010	1.506	402020	1.468
41	411990	2.793	412000	2.174	412003	1.707	412010	1.513	412020	1.475
42	421990	2.81	422000	2.184	422003	1.716	422010	1.521	422020	1.482
43	431990	2.828	432000	2.194	432003	1.725	432010	1.529	432020	1.491
44	441990	2.848	442000	2.206	442003	1.735	442010	1.539	442020	1.5
45	451990	2.87	452000	2.218	452003	1.746	452010	1.549	452020	1.51
46	461990	2.893	462000	2.231	462003	1.758	462010	1.56	462020	1.521
47	471990	2.918	472000	2.246	472003	1.771	472010	1.572	472020	1.533
48	481990	2.945	482000	2.262	482003	1.786	482010	1.585	482020	1.546
49	491990	3.039	492000	2.324	492003	1.832	492010	1.625	492020	1.584
50	501990	3.135	502000	2.388	502003	1.879	502010	1.666	502020	1.624
51	511990	3.233	512000	2.453	512003	1.927	512010	1.708	512020	1.665
52	521990	3.334	522000	2.519	522003	1.977	522010	1.752	522020	1.708
53	531990	3.437	532000	2.587	532003	2.029	532010	1.797	532020	1.751
54	541990	3.542	542000	2.656	542003	2.081	542010	1.843	542020	1.796
55	551990	3.65	552000	2.728	552003	2.136	552010	1.891	552020	1.842
56	561990	3.761	562000	2.801	562003	2.192	562010	1.941	562020	1.89
57	571990	3.876	572000	2.876	572003	2.25	572010	1.992	572020	1.94
58	581990	3.993	582000	2.953	582003	2.31	582010	2.045	582020	1.991
59	591990	4.114	592000	3.033	592003	2.372	592010	2.1	592020	2.045
60	601990	4.239	602000	3.115	602003	2.436	602010	2.157	602020	2.1
61	611990	4.369	612000	3.199	612003	2.503	612010	2.216	612020	2.158
62	621990	4.502	622000	3.286	622003	2.572	622010	2.277	622020	2.218
63	631990	4.641	632000	3.377	632003	2.644	632010	2.342	632020	2.281
64	641990	4.785	642000	3.471	642003	2.72	642010	2.409	642020	2.347
65	651990	4.935	652000	3.568	652003	2.798	652010	2.479	652020	2.416

	Summer CO				
	1990	2000	2003	2010	2020
idle	382.01	173.20	107.38	89.79	86.19
2.5	152.802	69.281	42.952	35.914	34.476
3	130.372	59.649	37.14	31.184	29.986
4	101.219	47.379	29.725	25.132	24.23
5	82.954	39.834	25.144	21.377	20.65
6	70.385	34.69	22.002	18.792	18.178
7	61.196	30.943	19.697	16.887	16.353
8	54.182	28.082	17.924	15.417	14.94
9	48.655	25.822	16.513	14.243	13.81
10	44.189	23.988	15.361	13.281	12.882
11	40.505	22.468	14.4	12.478	12.105
12	37.416	21.188	13.586	11.795	11.444
13	34.789	20.094	12.887	11.208	10.874
14	32.526	19.148	12.281	10.697	10.379
15	30.557	18.322	11.749	10.249	9.943
16	28.826	17.595	11.28	9.852	9.557
17	27.292	16.949	10.862	9.499	9.214
18	25.922	16.373	10.489	9.183	8.906
19	24.689	15.854	10.153	8.899	8.629
20	23.671	15.215	9.726	8.521	8.261
21	22.78	14.434	9.208	8.059	7.812
22	21.963	13.723	8.738	7.639	7.403
23	21.212	13.073	8.308	7.256	7.03
24	20.519	12.476	7.914	6.904	6.688
25	19.878	11.928	7.551	6.581	6.373
26	19.282	11.421	7.217	6.283	6.083
27	18.728	10.952	6.908	6.007	5.815
28	18.213	10.517	6.622	5.752	5.567
29	17.732	10.113	6.357	5.515	5.336
30	17.284	9.736	6.109	5.294	5.122
31	16.866	9.385	5.879	5.088	4.922
32	16.477	9.056	5.663	4.896	4.735
33	16.115	8.749	5.462	4.717	4.561
34	15.777	8.46	5.273	4.548	4.398
35	15.464	8.19	5.096	4.391	4.245
36	15.173	7.936	4.93	4.243	4.101
37	14.904	7.698	4.774	4.104	3.966
38	14.654	7.473	4.628	3.973	3.84
39	14.425	7.262	4.49	3.85	3.721
40	14.213	7.063	4.359	3.734	3.608
41	14.019	6.875	4.237	3.625	3.503
42	13.842	6.698	4.121	3.523	3.404
43	13.68	6.532	4.013	3.426	3.31
44	13.533	6.374	3.91	3.335	3.222
45	13.399	6.226	3.813	3.249	3.14
46	13.278	6.086	3.722	3.168	3.062
47	13.167	5.954	3.636	3.092	2.989
48	13.067	5.829	3.555	3.02	2.92
49	13.081	5.833	3.558	3.023	2.923
50	13.099	5.839	3.563	3.027	2.927
51	13.122	5.847	3.569	3.032	2.932
52	13.149	5.857	3.577	3.039	2.939
53	13.181	5.868	3.586	3.047	2.948
54	13.217	5.882	3.597	3.057	2.958
55	13.259	5.897	3.609	3.068	2.97
56	15.406	6.46	3.914	3.291	3.178
57	17.559	7.026	4.22	3.516	3.389
58	19.718	7.593	4.528	3.743	3.601
59	21.884	8.164	4.838	3.972	3.815
60	24.057	8.737	5.151	4.203	4.032
61	26.237	9.313	5.466	4.436	4.251
62	28.426	9.892	5.784	4.672	4.472
63	30.623	10.475	6.104	4.91	4.696
64	32.831	11.061	6.428	5.151	4.923
65	35.049	11.652	6.755	5.395	5.154

	Winter CO				
	1990	2000	2003	2010	2020
idle	563.35	269.55	174.89	143.73	136.61
2.5	225.339	107.819	69.954	57.491	54.642
3	191.331	92.536	60.189	49.651	47.263
4	147.541	73.169	47.822	39.698	37.884
5	120.397	61.343	40.26	33.593	32.12
6	101.872	53.337	35.126	29.432	28.184
7	88.416	47.54	31.393	26.398	25.308
8	78.202	43.14	28.547	24.078	23.103
9	70.187	39.681	26.299	22.24	21.355
10	63.734	36.888	24.476	20.745	19.93
11	58.429	34.583	22.966	19.505	18.745
12	53.993	32.649	21.693	18.457	17.744
13	50.227	31.002	20.605	17.559	16.885
14	46.992	29.582	19.665	16.783	16.141
15	44.18	28.345	18.844	16.103	15.49
16	41.713	27.257	18.121	15.505	14.915
17	39.53	26.294	17.48	14.973	14.404
18	37.583	25.435	16.907	14.498	13.948
19	35.833	24.663	16.393	14.071	13.538
20	34.404	23.691	15.713	13.484	12.971
21	33.166	22.479	14.874	12.752	12.263
22	32.033	21.375	14.111	12.086	11.619
23	30.992	20.366	13.414	11.477	11.03
24	30.032	19.441	12.775	10.92	10.491
25	29.144	18.589	12.187	10.407	9.995
26	28.32	17.803	11.645	9.934	9.538
27	27.554	17.075	11.144	9.497	9.115
28	26.84	16.399	10.679	9.092	8.723
29	26.174	15.77	10.247	8.715	8.359
30	25.553	15.184	9.845	8.364	8.019
31	24.973	14.636	9.469	8.036	7.703
32	24.432	14.124	9.118	7.73	7.407
33	23.927	13.644	8.789	7.443	7.13
34	23.456	13.194	8.481	7.174	6.87
35	23.016	12.771	8.191	6.922	6.627
36	22.607	12.373	7.918	6.684	6.397
37	22.226	11.998	7.661	6.461	6.182
38	21.872	11.645	7.419	6.25	5.978
39	21.543	11.311	7.19	6.051	5.787
40	21.238	10.997	6.974	5.863	5.606
41	20.957	10.7	6.77	5.686	5.435
42	20.696	10.419	6.576	5.518	5.274
43	20.456	10.153	6.394	5.359	5.121
44	20.234	9.902	6.22	5.209	4.977
45	20.031	9.664	6.056	5.067	4.84
46	19.843	9.438	5.901	4.933	4.711
47	19.669	9.224	5.754	4.805	4.589
48	19.508	9.021	5.614	4.685	4.474
49	19.522	9.025	5.617	4.688	4.477
50	19.54	9.032	5.623	4.692	4.481
51	19.563	9.04	5.629	4.698	4.488
52	19.59	9.05	5.638	4.706	4.496
53	19.621	9.063	5.648	4.715	4.505
54	19.658	9.077	5.66	4.726	4.517
55	19.7	9.094	5.673	4.739	4.53
56	22.958	9.983	6.174	5.106	4.87
57	26.222	10.875	6.677	5.475	5.211
58	29.492	11.77	7.182	5.847	5.555
59	32.769	12.667	7.689	6.22	5.901
60	36.052	13.568	8.199	6.596	6.249
61	39.344	14.471	8.712	6.975	6.6
62	42.644	15.378	9.227	7.356	6.954
63	45.952	16.289	9.746	7.74	7.311
64	49.271	17.203	10.268	8.127	7.671
65	52.599	18.122	10.793	8.517	8.034

Public Participation

- Public Participation Plan Summary
- Workshop Overview
- Meeting Notes
- Official's Comments
- Public Comments
- Survey Results Summary

PUBLIC PARTICIPATION PLAN for Cape Cod

I. Introduction

The Public Participation Plan (PPP) for Cape Cod designates the procedures to follow for development and adoption of Regional Transportation Plans (RTPs), Transportation Improvement Programs (TIPs), Unified Planning Work Programs (UWPs) and regional transportation studies undertaken by the Cape Cod Metropolitan Planning Organization (MPO) in conducting the "3C" Transportation Planning Process: Comprehensive, Continuing and Cooperative. These procedures are designed to proactively involve the public in the development of these plans, programs and studies.

II. Background

The Cape Cod Metropolitan Planning Organization (MPO) was established under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) following the United States Census of Population in 1990. ISTEA amended Section 134 of Title 23, United States Code, to require designation of an MPO in an urbanized area of more than 50,000 population. The MPO was designated by the Governor of the Commonwealth of Massachusetts. The CCC transportation staff is also the MPO staff.

The Cape Cod Metropolitan Planning Organization (MPO) consists of the following four member agencies:

- Cape Cod Commission (CCC)
- Cape Cod Regional Transit Authority (CCRTA)
- Massachusetts Highway Department (MHD)
- Executive Office of Transportation and Construction (EOTC)

The Cape Cod Joint Transportation Committee (CCJTC) is the advisory group to the MPO.

The signatories of the MPO who represent the agencies (or designate a representative) at the MPO meetings, vote and sign to endorse documents are as follows:

- Chair of the CCC
- Chair of the CCRTA
- Commissioner of the MHD
- Secretary of the EOTC--the Secretary is the Chair of the MPO

Each of the local advisory group or agency members agencies --the CCJTC (advisory), CCC and CCRTA-- has a member representative from each town. In addition to towns, the CCJTC includes representatives from the EOTC, MHD, CCC, CCRTA, Barnstable County Commissioners, the Assembly of Delegates, the Association for Preservation of Cape Cod, and other interested parties. "Interested parties" (recommended by the CCJTC) may include: elected officials, representatives of public and private institutions, and/or major transportation providers. In addition to town representatives, the CCC includes a Barnstable County Commissioner, a Minority Representative, a Native American Representative and a Governor's Appointee.

III. PPP Requirements for Plans, Programs and Studies

A) *CCJTC mailing* / CCJTC Agendas mailing list

1) The CCJTC mailing will include mailing distribution to the CCJTC members and the "CCJTC Agendas" mailing list.

2) The CCC staff will maintain the "CCJTC Agendas" mailing list for notifying interested parties of CCJTC meetings and topics for discussion. This list contains citizens, major transportation providers, the Cape's legislative delegation, representatives of environmental organizations and representatives of those traditionally underserved by existing transportation systems. Anyone wishing to receive the transportation meeting agendas may request addition to this "CCJTC Agendas" mailing list.

B) Procedures to promote involvement

1) 3C Transportation Planning Process The PPP encourages early and continuing opportunities for involvement in the planning process by the following:

- CCJTC agendas to the CCJTC mailing [CCJTC Members and "CCJTC Agendas" mailing list]
- Other transportation meeting/workshop notices with 14 day notice to the CCJTC mailing and to the main regional newspaper
- notice of Draft and Final RTPs, TIPs, major transportation studies and the public comment period to the CCJTC mailing and a press release to the main regional newspaper

2) Development of RTPs, TIPs and major transportation studies The PPP requires the following procedures in development or major amendment of RTPs, TIPs, or major transportation studies undertaken in the region:

- item listed on the agenda of a regular meeting when discussion of the item is proposed
- CCJTC agendas to the CCJTC mailing
- a public meeting (the public meeting may be a part of a regular CCJTC meeting by mailing of the agenda with 14 day notice); there will be at least one public meeting in the development of RTPs and TIPs major transportation studies. The public meeting for the TIP will satisfy the PPP and afford an opportunity for public comment in accordance with requirements for Section 5307 Grants from the Federal Transit Administration (FTA) with the following: a) the grantee or a designee is available at the public meeting, and b) the Section 5307 projects in the TIP are routine projects. Section 5307 projects that require an environmental assessment or an environmental impact statement will require additional public involvement, in accordance with the joint Federal Highway Administration (FHWA)/FTA environmental regulations, 23 CFR, part 771.
- 30 day public comment period on RTPs, TIPs and major transportation studies during development or amendment

3) Copies of Draft and Final RTPs or TIPs The PPP requires the following procedures in distribution of Draft and Final RTPs or TIPs:

- copies of drafts and finals to each CCJTC Member, CCC Member, CCRTA Member, Town Administrator/Executive Secretary/Manager, one public library in each town.
- one copy of draft and final each to the Assembly of Delegates and the Barnstable County

Commissioners
- one copy on display at the CCC office in Barnstable
- major transportation studies will be made available

4) Approval of RTPs or TIPs The PPP requires the following procedures in approval of RTPs and TIPs:
- MPO endorsement at an MPO meeting on Cape Cod
- MPO meetings will be noticed with a minimum of 14 days to MPO signatories and through the CCJTC mailing
- review and approval by state and federal agencies as required by these respective agencies

5) UWPs, regional transportation studies The Cape Cod Joint Transportation Committee (CCJTC) as advisory to the MPO will review plans, programs and studies as a regular course of business in meetings throughout the year. UWPs will be included on the MPO meeting agenda and presented for endorsement. Major studies, such as a Major Investment Study (MIS) or a focus study on a problem area completed between RTP updates, may also be presented to the MPO for endorsement.

6) EOTC/MHD In addition, this PPP requires that the Executive Office of Transportation and Construction (EOTC), the Massachusetts Highway Department (MHD) and their associated agencies or hired consultants are encouraged to follow the PPP for Cape Cod with transportation plans, studies and/or designs are undertaken in or near to the Cape Cod Region. This will allow for improved communication and cooperation in development of transportation plans, studies and/or designs by informing and including the CCC transportation staff/MPO staff, the CCJTC and those listed on the CCJTC Agendas mailing list of transportation studies/projects undertaken in or near to the Cape Cod Region.

IV. PPP Review/Revision

A) This PPP was formed under the PPP of July 15, 1994, and the MPO endorsed this PPP at their meeting on August 28, 1997. This PPP became effective September 9, 1997 after MPO endorsement and no additional comments through the end of the comment period on September 8, 1997.

B) The PPP will be periodically reviewed. Revisions or new drafts of the PPP as developed by the CCC transportation staff/MPO staff will be mailed according to the CCJTC mailing and presented to the MPO for endorsement. The public comment period during development of the PPP revision or draft will be 45 days.

The "Right" Transportation System

1) Goal: To establish and maintain a transportation system on Cape Cod for present and future year-round and seasonal needs which is safe, convenient, accessible, economical and consistent with the Cape's historic, scenic and natural resources.

Modes and Roads

2) Goal: To reduce dependence on private automobiles by developing and integrating alternate modes (e.g., rail, bus, ferry, air, bicycle and pedestrian) into the transportation system and by promoting substitutes for transportation such as telecommunications.

Land Use Causes Transportation Causes Land Use

3) Goal: To support transportation solutions which preserve and enhance Cape Cod's character by considering the interrelationship between changes in transportation capacity and changes in land use.

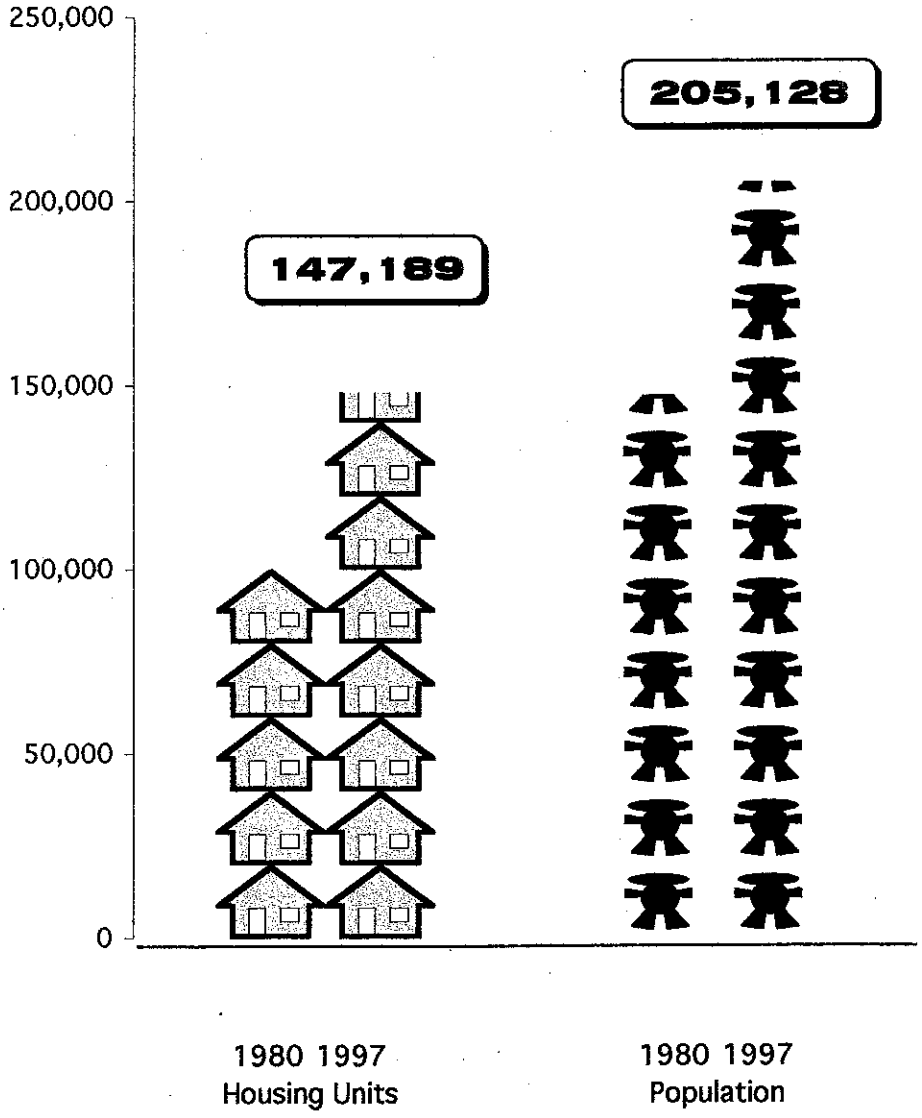
Traveling Smarter

4) Goal: To promote an information-based consumer-oriented transportation system that encourages travelers to use the most environmentally sensitive and efficient means of travel.

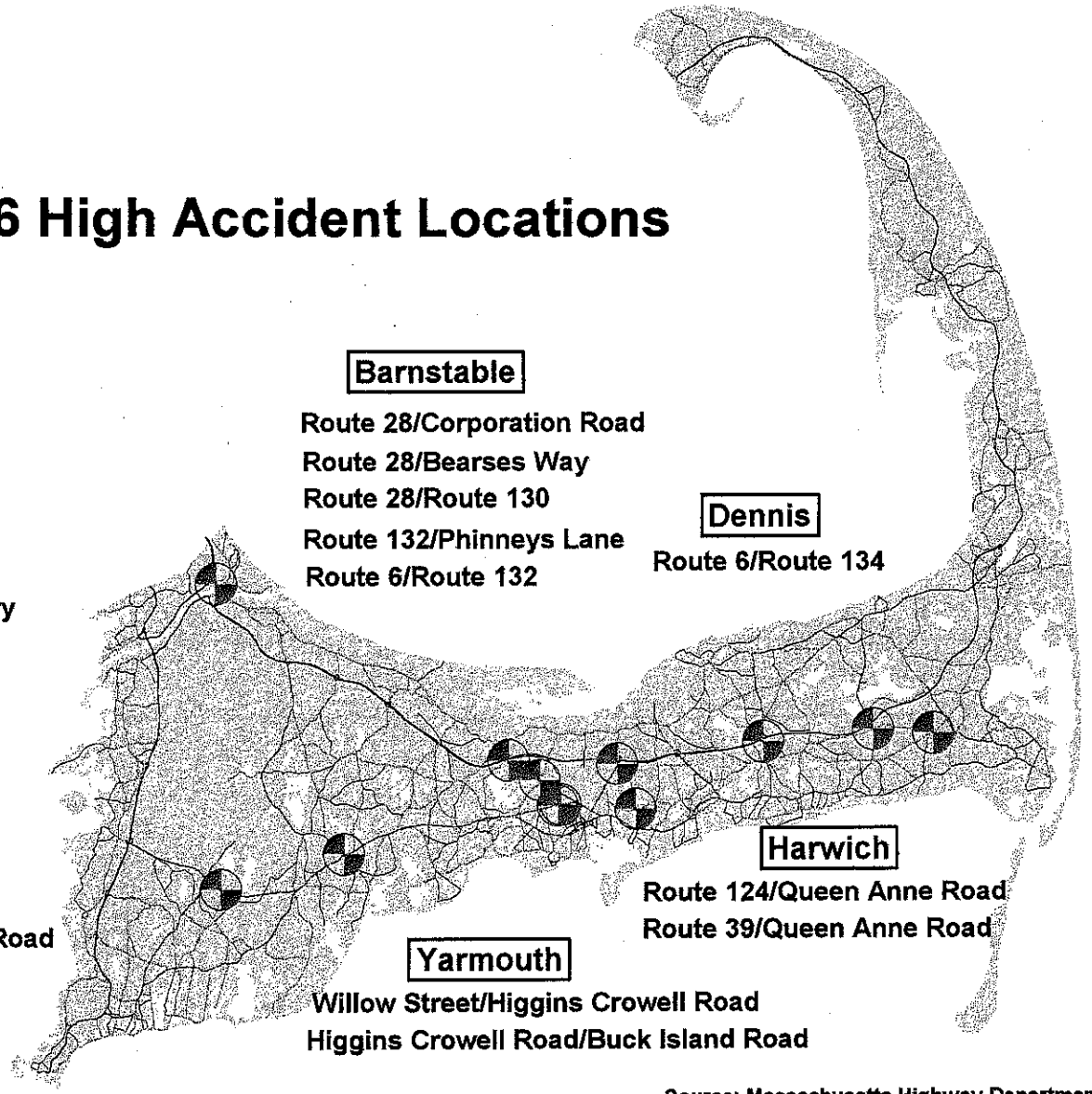
Working Together

5) Goal: To promote cooperation among the various transportation agencies which have responsibility for the Cape's transportation system.

Cape Cod Population and Housing



1994-1996 High Accident Locations



Barnstable

Route 28/Corporation Road
Route 28/Bearses Way
Route 28/Route 130
Route 132/Phinneys Lane
Route 6/Route 132

Bourne

Sagamore Rotary

Dennis

Route 6/Route 134

Falmouth

Route 151/Currier Road

Harwich

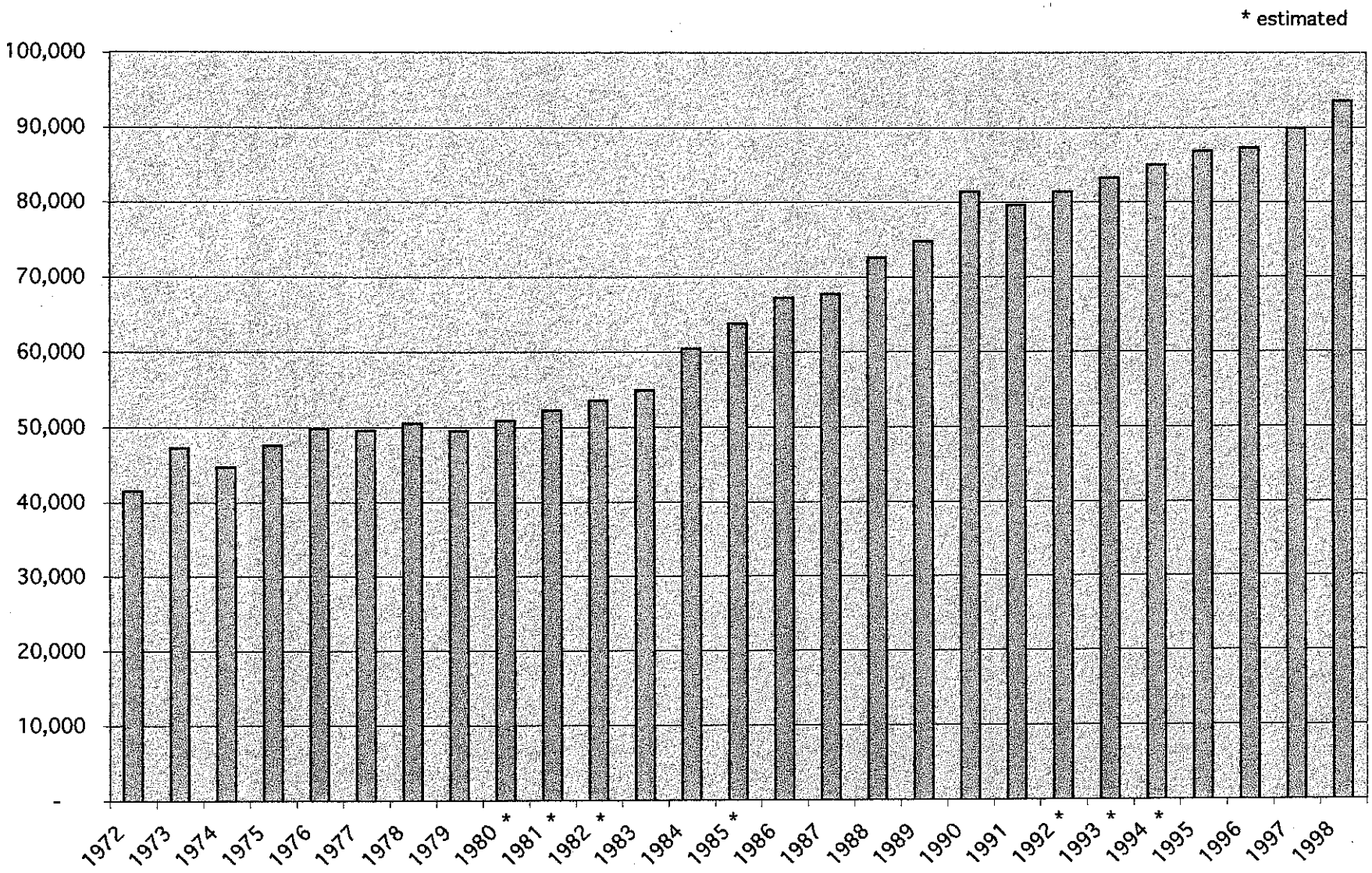
Route 124/Queen Anne Road
Route 39/Queen Anne Road

Yarmouth

Willow Street/Higgins Crowell Road
Higgins Crowell Road/Buck Island Road

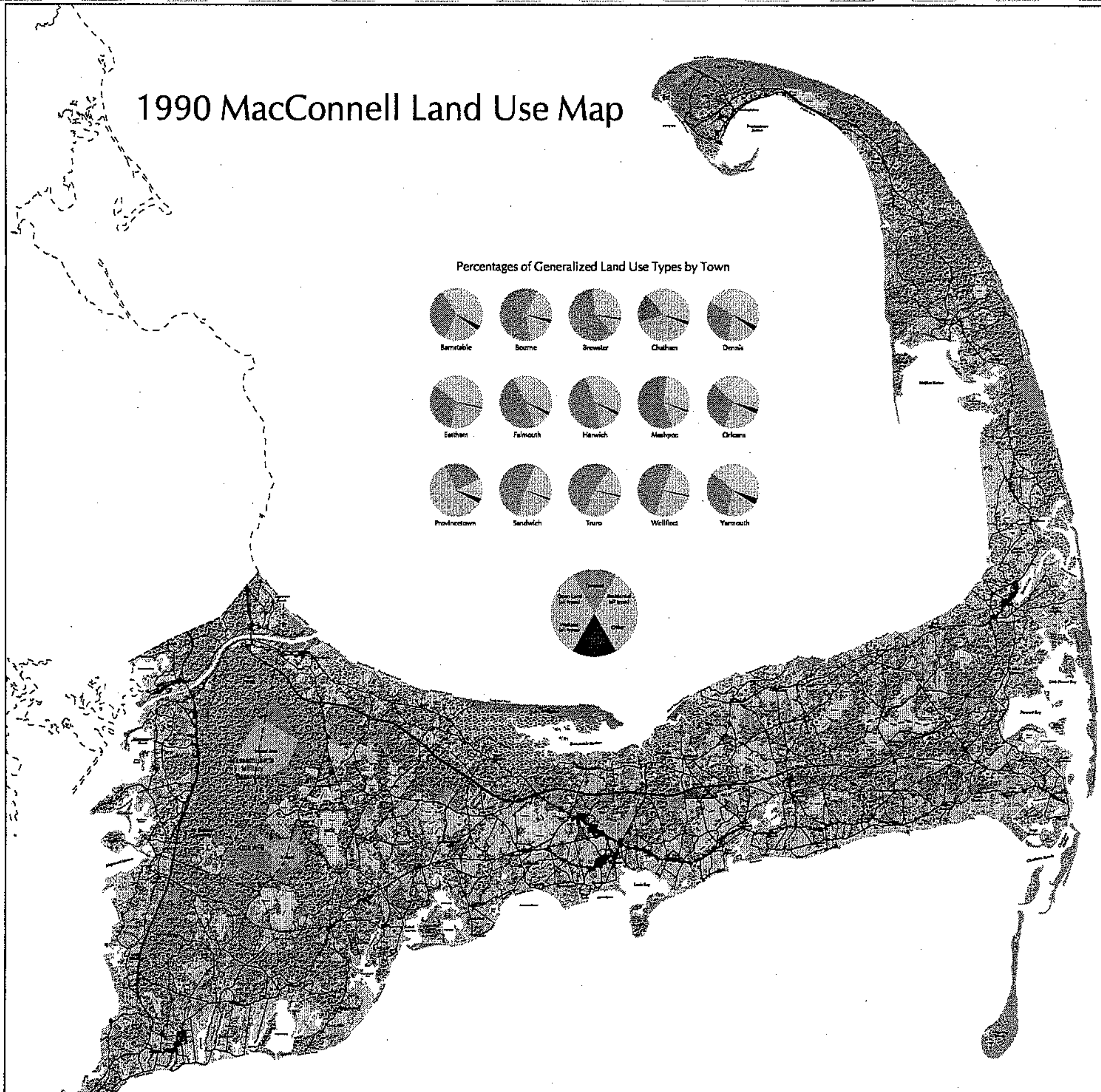
Source: Massachusetts Highway Department

Average Daily Canal Crossings



Compiled by CCC from MHD traffic counts

1990 MacConnell Land Use Map



This map intends to show generalized land use patterns for Cape Cod. The eleven land use categories depicted on this map originally derived from twenty-five different categories identified by the Resouce Mapping Project at the University of Massachusetts, Amherst under the direction of William MacConnell. Photo-interpretation and automation was completed in 1990 with funding from the Massachussetts Department of Environmental Protection, and the Cape Cod Commission.

The land use categories for the map have been combined as follows:

"Agricultural" includes crop land and orchards.

"Open Lands" consists of pasture, open land, urban open land, and land used for transportation purposes.

"Forested Land" is strictly from the forest land category.

"Wetlands" includes inland wetlands, coastal wetlands, and cranberry bogs.

"Mining" is strictly from the mining category.

"Recreational" consists of participation recreation, spectator recreation, golf courses, and marinas.

"Residential" includes multi-family residential, high-density residential, medium-density residential, and low-density residential.

"Commercial" derives from the commercial land use category.

"Industrial" comes from the industrial land use category.

"Waste Disposal" is strictly from the waste disposal category.

"Water Bodies" derives from the water category.

Additionally, airport boundaries shown on this map were extracted from each of the towns' assessors databases. The impact area within the Massachusetts Military Reservation was digitized from the 'MMR IMPACT AREA WORKPLAN' (FIGURE 3-1), from the 'DRAFT ACTION PLAN' produced in December 1996.

Land use categories for the pie charts were combined to form the following:

"Forested" comes from the forest land category alone.

"Residential" includes multi-family residential, high-density residential, medium-density residential, and low-density residential.

"Open Land" consists of pasture, open land, urban open land, land used for transportation purposes, and the impact area.

"Wetlands" includes inland wetlands, coastal wetlands, and cranberry bogs.

"Commercial" derives from the commercial land use category.

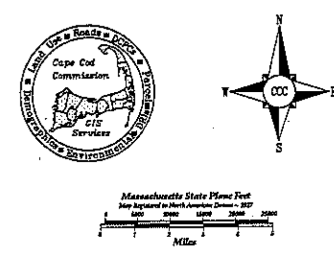
"Other" refers to all other land use categories.

Some of the data layers shown on this map were created with special assistance from the following agencies: MassGIS of Boston, MA; the Mapworks Company of Norwell, MA; the Graphic Data Specialists of Sandwich, MA; and each of the 15 towns within Barnstable County.

The information shown on this map comes from a variety of scales and levels of accuracy and therefore this map should only be used for planning purposes. This map was created by the Cape Cod Commission's geographic information systems department using the Arc/Info mapping and map analysis software. This map may be reproduced in part or in whole with permission from the Cape Cod Commission. Any corrections to this map are welcome at the Commission's offices.

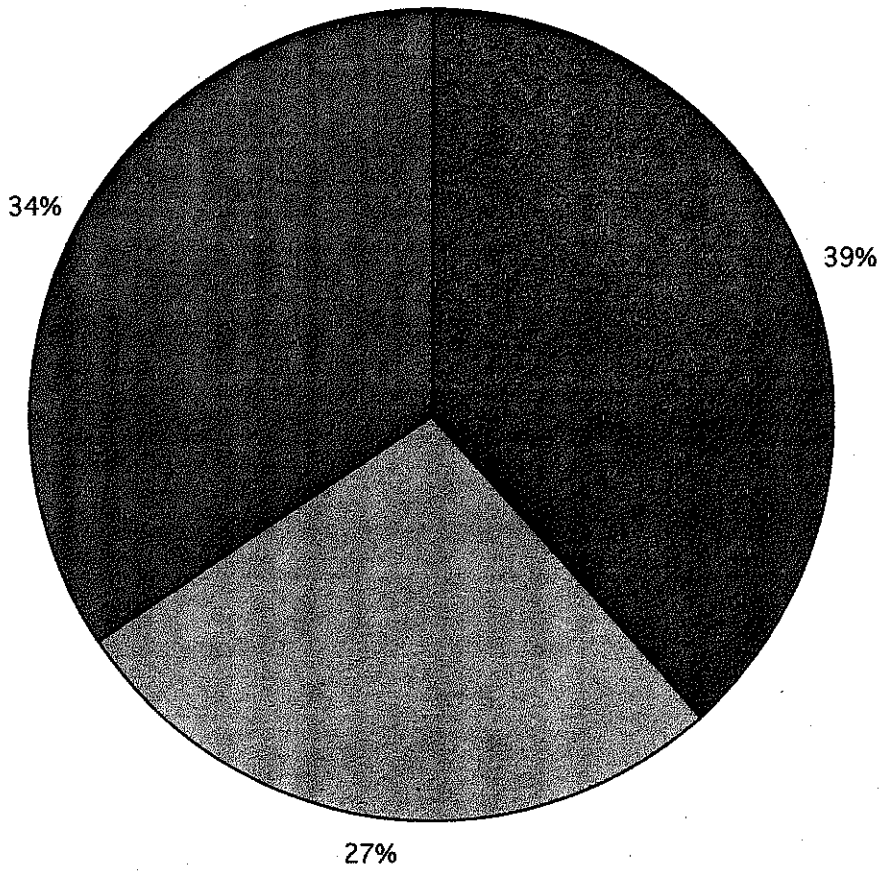
Legend

Agricultural	Residential
Wetlands	Commercial
Mining	Industrial
Forested Lands	Waste Disposal
Open Lands	Airports
Recreational	Impact Area (MMR)
Water Bodies	Major Roadways



Map created on February 25, 1997

1997 Land Use Breakdown

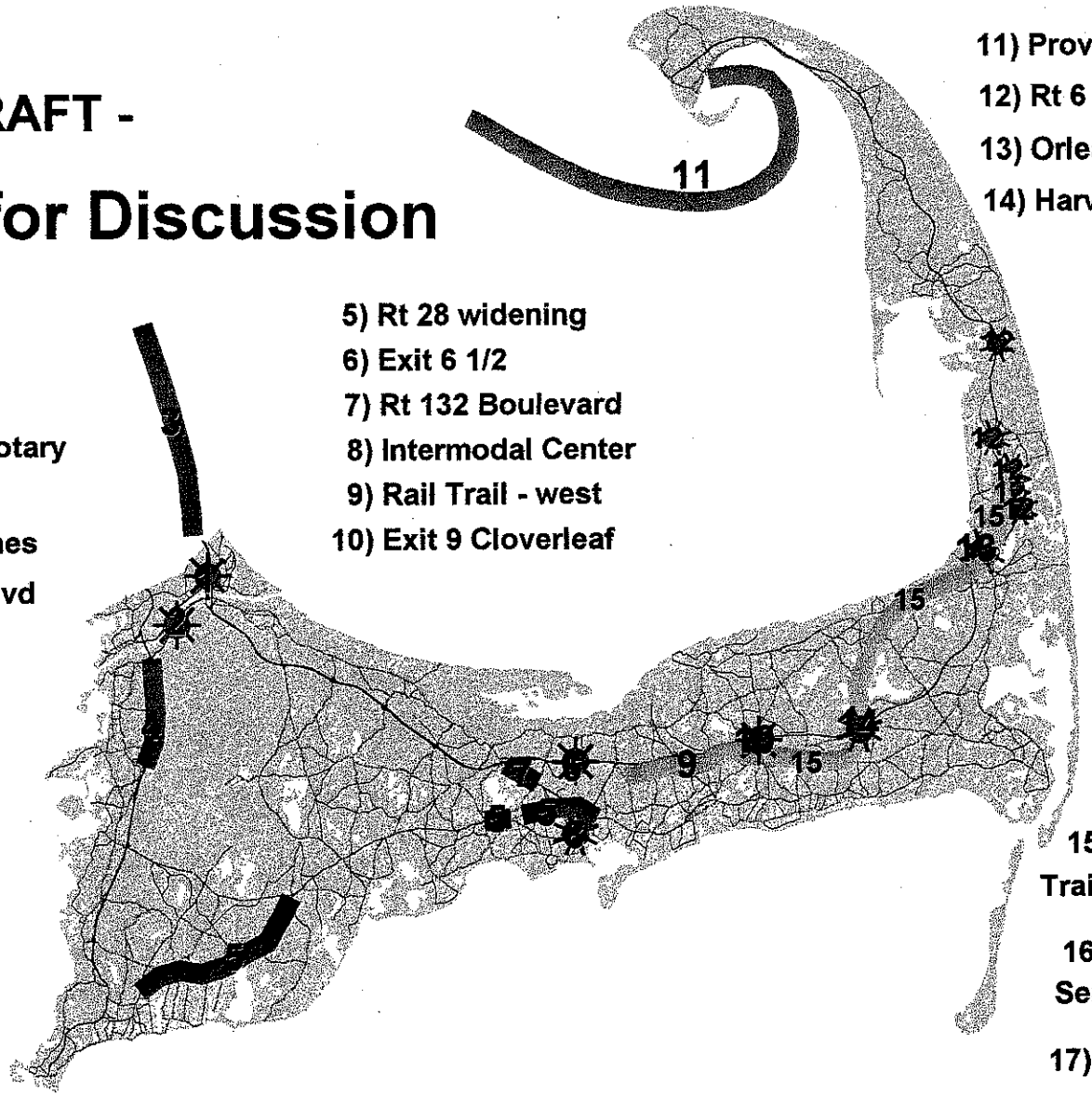


	%
Developed	39
Protected	27
Undeveloped/Unprotected	34

Based on 1990 MacConnell Land Use Data, updated to end of 1997 based on local and regional permit data

- DRAFT -

Projects for Discussion



1) Sagamore Rotary
2) Canal Roads
3) Rt 3 New Lanes
4) MacArthur Blvd

5) Rt 28 widening
6) Exit 6 1/2
7) Rt 132 Boulevard
8) Intermodal Center
9) Rail Trail - west
10) Exit 9 Cloverleaf

11) Provincetown Ferry
12) Rt 6 Five Intersections
13) Orleans Bike Bridge
14) Harwich Bike Bridge

Location
Corridor

15) Cape Cod Rail Trail Reconstruction

16) Additional Bus Service (not shown)

17) Others not shown

RTP 2k

Cape Cod 2000 Regional Transportation Plan

Tonight's Presentation

- Welcome
- Presentation
- Discussion Q & A

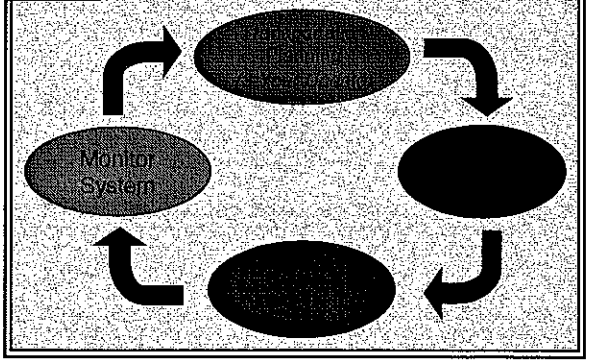
RTP 2k

Transportation Plan Purpose

- Documents the financial constraints of the region's long-term planning initiatives
- Connects long-range policies to short-term projects
- Demonstrates parity between recommended projects, financial considerations, and regional goals

RTP 2k

Why Plan? The 3 Year Cycle



RTP 2k

Who is Involved?

- The United States Department of Transportation
- The Executive Office of Transportation and Construction
- The Cape Cod Commission
- The Cape Cod Regional Transit Authority
- The Massachusetts Highway Department
- The Public and the Planning Process

RTP 2k

What are the Goals?

1) The "Right" Transportation System

2) Modes and Roads

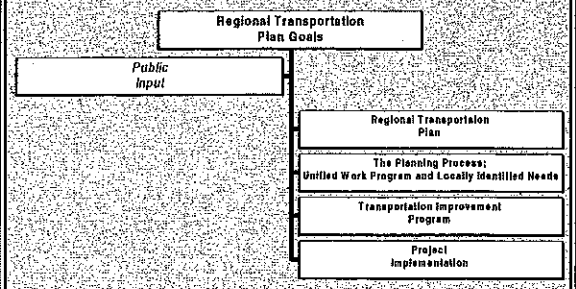
3) Land Use Causes Transportation Causes Land Use

4) Traveling Smarter

5) Working Together

RTP 2k

The Transportation Plan



What does the plan contain?

Existing Conditions

- All Modes Examined
  - Water
  - Air
  - Bus
  - Auto
  - Rail
  - Bikes/Pedestrians
- A Cape-wide Perspective
- A Sub-Regional Perspective
  - Upper Cape Area
  - Barnstable-Yarmouth Area
  - The Lower and Mid-Cape Area
  - The Outer Cape

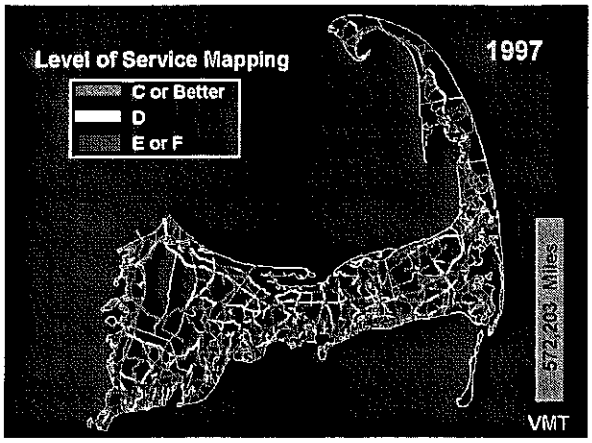
Future Expectations

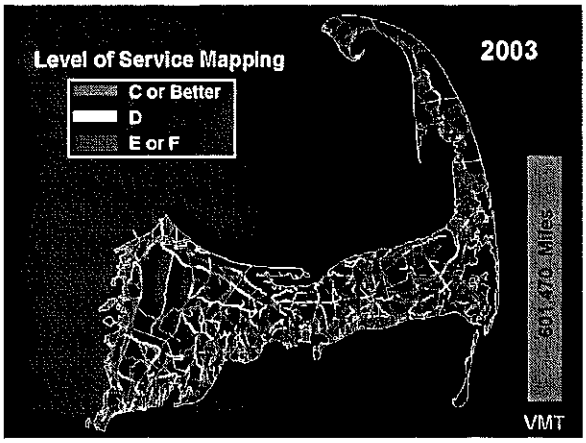
- Regional Issues
  - Environmental
  - Scenic and Historic
  - Demographic Change
- Land Use Forecasts
- Projected trends of Cape Cod

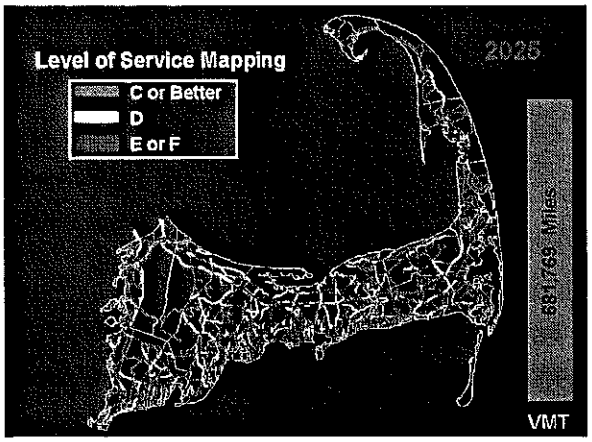
Future Roadway Conditions

Travel Demand Forecasting

- Computerized Cape-wide model of the road system [avg. summer weekday peak hour]
- All roads above "local" [no subdivision roads]
- Inputs include locations and amounts of population, employment, and other activities
- To test scenarios: change in land use, new road links, improvements to existing roads







RTP 2k

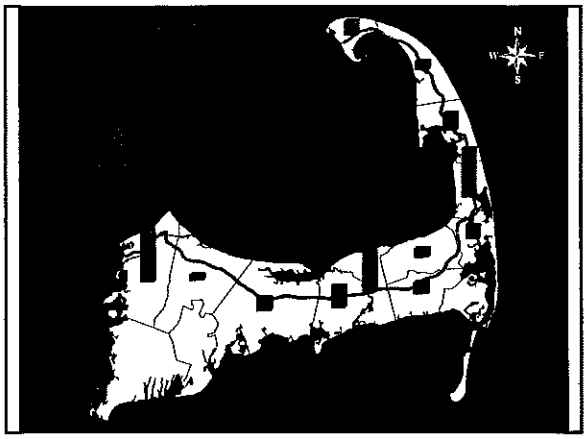
. . . Safety on Cape Cod

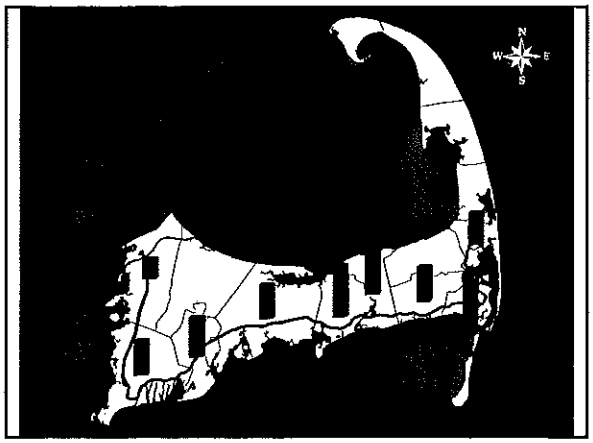
- The New Safety Chapter
  - Highlights the special needs of Cape Cod
  - Develops considerations for project design
    - Drivers
    - Roadways
    - Recommendations

RTP 2k

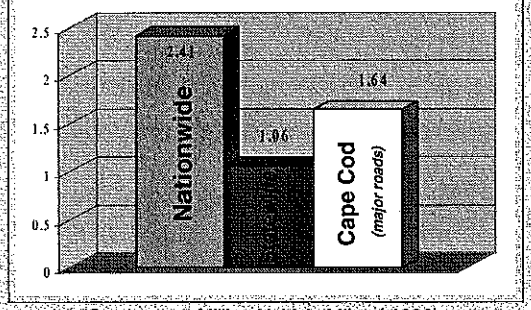
Cape Cod Crash History

- Analysis of 3 years of crash data [1997-99]
- Compiled data by Town for major Cape roads
- Comparison of Cape Cod to the State and Nation





Overall Crash Statistics



Crashes per Million Vehicle Miles (1998)

Cape Cod Drivers

- Older Drivers
  - Vision Problems
  - Reaction times slower
  - Diminished physical capabilities
- Visitors
  - Unfamiliar with area
  - Unfamiliar with rotaries, rural roads

Cape Cod Drivers

- Younger Drivers
  - Young Visitors with a 'Holiday' attitude
  - Younger Residents

Safety Recommendations

- Older Drivers
  - Protected Left Turns
  - Maintain/Improve Roadway Delineation
  - Improve Signage Standards
  - Improve Lighting
  - Establish Education Programs for Older Drivers

Safety Recommendations

- Visitors
  - Better directional signage
  - Rotary "Rules" Posted at Entrances and Included in Visitor Information
- Younger Drivers
  - Advertising and Enforcement of DUI Laws
  - Increase Local Education Programs

Strategies

...Transportation Plan Strategies

- Public Transportation
  - More Emphasis
- Highway/Roadways
  - Enhance Safety and Mobility
  - Limit increases in Automobile Capacity

Public Transportation Initiatives

- Build the Hyannis Intermodal Center
- Improved Coordination of Services
- Improve Service - Promote "Car-Free" Vacations
- Improve Alternative Access to Steamship Authority
- Develop a Strategic Plan for Transit on Cape Cod

CAPE COD TRANSIT

Highway Strategy Highlights

- Rural Roads Initiative
  - Preserve Character of Cape Cod Roads
  - Allow "Footprint" Roadway Rehabilitation
- Access Management
  - Limit/Consolidate Curb Cuts
  - Limit New Development Access to Existing Secondary Roads

Additional Strategies

- Maintain the Existing Transportation System
- Enhance Mobility Through Alternative Transportation
- Preserve Existing Rights-Of-Way
- Encourage Practices to Limit Automobile Traffic from Off-Cape
- Focus Funding for On-Cape Improvements Rather than Cape Access
- Promote Congestion Pricing Schemes

Determination of Future Projects

- Evaluation Procedures
  - based on regional goals
  - environmental impacts
  - financial constraints
- Project Costs and Available Funding
  - based on project planning
  - funds available estimated by MHD

...Transportation Projects

Scoring and Ranking

- Safety
- Air Quality
  - Travel miles [VMT]
  - Travel hours [VHT]
- Consistency with Regional Goals
  - Intermodal Connections
  - Community Character
  - Environmental Impacts

Next Steps

- Continue Public Meetings
- Incorporate Public Comments
- Finalize Plan for MPO endorsement in January

Discussion

For More Information or to Comment

Cape Cod Commission

3225 Main Street

Barnstable, MA. 02630

(508)-362-3828

Fax: (508)-362-3136

email: trans@capecodcommission.org

Or visit: www.gocapecod.org

CAPE COD COMMISSION

3225 MAIN STREET
P.O. BOX 226
BARNSTABLE, MA 02630
(508) 362-3828
FAX (508) 362-3136
E-mail: frontdesk@capecodcommission.org

Public Meetings

Cape Cod Regional Transportation Plan

The Cape Cod Commission is holding a series of meetings to get public input for the update of the Cape Cod Regional Transportation Plan. To find out more about the current transportation plan and help shape the next plan, please attend one of these meetings:

Wednesday, May 19, 1999 at 7:00 pm
Gus Canty Community Center
790 East Main Street
Falmouth, MA 02540

Thursday, May 20, 1999 at 7:00 pm
Eastham Town Hall
Route 6
Eastham, MA 02642

Friday, May 21, 1999 at 1:30 pm
Dennis Senior Center
1045 Route 134
East Dennis, MA 02641

Written comments are also welcome at the Cape Cod Commission, PO Box 226, Barnstable, MA 02630.

CAPE COD COMMISSION

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BARNSTABLE, MA 02630
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FAX (508) 362-3136
E-mail: frontdesk@capecodcommission.org

www.gocapecod.org

Public Meeting

Cape Cod Regional Transportation Plan

The Cape Cod Commission is holding an additional meeting to discuss the update of the Cape Cod Regional Transportation Plan. To find out more about the current transportation plan and help shape the next plan, please attend the following meeting:

Wednesday, December 1, 1999 at 7:00 pm
Gus Canty Recreation Center
790 E. Main Street
Falmouth

Written comments are also welcome:
Cape Cod Commission
P.O. Box 226, Barnstable MA 02630
Fax: (508) 362-3136 • Email: trans@capecodcommission.org

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PUBLIC MEETINGS

Cape Cod 2000

Regional Transportation Plan

Preserving & Enhancing the Cape's Transportation System

Every three years the Cape Cod Commission updates the regional transportation plan for Cape Cod in cooperation with state and federal transportation agencies. We are now holding a series of meetings to obtain public comment on the update for the period 2000-2003. Please attend the meeting that is most convenient for you. For information on the 1997-2000 plan, please go to **www.gocapecod.org/rtp** or call the Cape Cod Commission at (508) 362-3828.

Monday, November 13, 2000 • 2 PM
Yarmouth Town Hall Hearing Room
1146 Route 28 • Yarmouth, Massachusetts

Wednesday, November 15, 2000 • 7 PM
Eastham Town Hall
2500 State Highway • Eastham, Massachusetts

Monday, November 20, 2000 • 7 PM
Carol Jacobson Senior Center
500 Great Neck Road North • Mashpee, Massachusetts

Public Meeting Summary of Comments

+ = support
- = opposition
c = comment
? = question

Falmouth 5/19/99:

c	Air transportation
+	Bike path from Falmouth depot
-	peak pricing air service at Logan
+	Parking controls for successful transit (Logan, Woods Hole)
c	1st 3 goals apply to biking, walking, transit
++++	Intermodal center @ MMR
-	Falmouth commuter rail
-	Dinner train
????	bridge traffic
?	development such as Canalside, Ballymeade, Mashpee Commons
+	air service from Plymouth
+	rail bridge
--	widening Rt 3
??	frequent bridge repairs
+	criteria to review projects based on meeting public need
+	improved accident reporting system
-	current public transit system
c	Islands' public transit system more efficient
-	current roadway development/waiver process
+	developing roadway standards for Cape Cod
+-	bridge improvements or tunnel construction
c	Vineyad contributes less than 10% to bridge traffic
??	traffic to Wood's Hole ferries
++	limit Island ferry service, provide alternate mainland ports
-	third ferry slip, larger SSA vessels
c	Rt 151 is E-W travel gateway
-	Mashpee development
?	Rail trail road crossings
+	Right turn on red
?	dangerious uturns on MacArthur Boulevard
-	southside connector
+	maintaining Sagamore Rotary
+	Bike path extension

Public Meeting Summary of Comments

+ = support
- = opposition
c = comment
? = question

+	alternating bridge lanes
-	Sealine route diverts through Osterville

Eastham 5/20/99:

-	road capacity increases
+	"no left turns" on Rt 6 except at traffic lights
+	Signal @ Gov. Prence
-	alleviating congestion at the Bridges
+	village shopping centers to shorten trips
c	Dunkin Donuts approved & disapproved by different Boards
+	"Outer Cape" Regional Planning Board incl. Cons. Com., Board of Health
?	traffic in Eastham headed for Provincetown
+	human service needs in transportation
?	access to Cape Cod Hospital for non-drivers
+	public transportation w/parking - access to Provincetown
c	councils on aging: population growing
+	don't change roads, change modes
c	should dramatize transportation problems, computerized presentations
?	gambling ships in Provincetown & Hyannis
c	need leadership in transportation issues
?	traffic capacity of east-west movements
?	Falmouth Rail line and bike path
?	buildout of available land
c	informational meetings and education are important
+	bus service coordinated with Kingston train
+	restore bus service on weekends to Park Square
c	bike trails have limited transportation use unless extended to destinations

Dennis 5/21/99:

+	timing of infrastructure with develeopment of CC Mall
++	rail service
+-	Rt3 widening
?	Capacity increases on land development

Public Meeting Summary of Comments

+ = support
- = opposition
c = comment
? = question

-	commuter rail
+	ferry service
c	usefulness of rail in hurricane evacuation
-	land development
+	re-zoning for mixed-use development
+	alternate flows on bridges/canal roads
+	Rt 132 improvements, Attucks Lane, Exit 6 1/2
c	Intermodal Center should be on other side of Airport
?	Traffic to SSA from W of New Bedford
?	mobility for low income people
?	congestion
+	public transportation

Year 2000 Regional Transportation Plan Public Meeting - Summary of Comments

Orleans, November 15, 1999 @ 7:00 pm

How can some of the strategies be implemented given existing regulations?

Industrial Development is a threat to keeping the road system working.

Concerned about parking at Cape Cod Mall and Mashpee Commons.

There are no shoulders on Rts. 6A and 28 - how can you accommodate Pedestrian and bike traffic?

Proposed strategies are inconsistent with DRI restrictions.

Need improved access to Hyannis via Exit 7.

Bus service is not currently well received, how can intra-cape service be achieved?

Please incorporate human service needs;

- Larger signs for bus stops and roads
- Benches and enclosures at bus stops
- Provide a County toll free transportation phone service
- Better intra and local Cape transit connections
- Need to address welfare to work transportation
- Must hold transportation summit

Need more intra-cape transit service

Need higher frequency, more elderly friendly buses.

Cape Cod Commission needs to talk to new owners of Bonanza Bus Lines

- Need better connections to TF Green and downtown Providence.

There must be more attention paid to safety

- Need to agree on a better reporting format for accidents
- Include removal of utility poles with roadway improvements

Car ferry to Wellfleet/Provincetown and water taxi services needed.

Bike Bridges for Rt 6/exit 10.

Safety Concerns

Too many left turns east of Orleans on route 6

Get rid of utility poles or increase their setback requirement

What can the CCC do to help obtain funding to improve Rt. 39 and Queen Anne Road?

How would the CCC fill out their own RTP survey?

Lots of Wellfleet traffic is generated by Provincetown

Can the impacts of Provincetown on other towns be mitigated?

The coordination and roles of the CCC and the CCRTA need clarification.

Current vision is unachievable.

Money is the biggest problem and we are losing several sources.

Barnstable - November 16, 1999 @ 2:00 pm

Need to improve Pedestrian crossings.

Roundabouts are traffic calming - Australian experience shows they control speed.

What is MHD's role?

More handicapped accessible public transportation is needed.

The Newburyport Commuter Rail extension has increased property values.

Need Commuter Rail on the Cape.

In favor of ferry service reduction to/from Woods Hole and reduced traffic in Falmouth.

Does not support current State plans for improving the Sagamore rotary.

How do you distinguish between safety and capacity?

The Southside Connector is the answer to the Canal area traffic problems.

Concerned about the change in policy with regard to the improvements to the Sagamore Rotary.

Changes in the character of ferry service will disrupt the complex business relationships that have been established - will effect Cape jobs and business.

Funding should not be an issue with respect to improving the Sagamore rotary, support safety improvements that reduce delays but do not increase capacity.

Need sensible intra-cape improvements at local level.

South Side Connector would solve Sagamore rotary problems.

Existing Bridges are the capacity constraint to Cape Cod.

Doing verses Planning; what will we do?

Did not understand objection to Commuter Rail service for the Cape; trains, not autos.

Canal Railroad bridge is achilles heel for rail service.

Support consideration of land use with transportation plan.

Great Plan

Do you consider the Sagamore Rotary project a safety project or a capacity project?

Support alternatives to Sagamore flyover such as a roundabout.

Need a rail system to Cape Cod.

Sagamore rotary reduces speeds on the bridge, protects 1937 bridge structure - Bourne bridge is falling apart.

Sandwich Meeting, Wednesday November 17, 1999 @ 7:00 pm

Can the CCC hold a meeting in Bourne?

Safety needs more emphasis in RTP. Younger, older seasonal population results in an additional safety issue. Enforcement officials need to be included in RTP process.

Supports Sagamore flyover; congestion leads to shortcuts through Sandwich, access to Jordan Hospital impaired, idling causes air pollution, drivers don't know how to use a rotary. Supports rail service to NY and Boston, at least 3 round trips a day. Tunnel for rail and auto traffic. Supports off-cape ferry terminals.

No tolls, Canal divides town. Supports train service.

Bourne is tired of being a doormat for the Cape. What are we going to do with the traffic that is here?

Traffic pressure is in Bourne, fix worst problem first. Elimination of Sagamore project reveals CCC prejudice against Canalside Commons project.

Rotaries are the greatest hazard in the world, fire and ambulance services cannot be effective due to rotary congestion. Ignoring access improvements will kill tourist industry.

Current growth in traffic is due to new housing. Tolls will be a hinderance. Rotaries are dangerous. Limit new housing, make new housing pay for roadway improvements.

Proposed strategies penalize Bourne. Don't sacrifice Bourne because CCC cannot obtain funding for access improvements.

Reduce Cape ferrys. Bourne has the right to the prosperity the mid-cape has enjoyed - allow the Canalside Commons project to proceed.

Southside connector will solve all of the canal problems.

Cannot deny people's right to build (Canalside Commons) - will be brought to court. Can't restrict access to the Cape- what is next, passports? Business needs tourists.

How does discouraging new business help Cape Cod?

If rotary improvements are paid for by a developer would the CCC be against it then?

Why has the CCC allowed development in Hyannis but will not allow it in Bourne?

Has had a business on the Sagamore Rotary since 1937 and does not see how a flyover with six traffic lights can improve things. Bourne passed a resolution in 1995 endorsing the Southside Connector.

Canalside Commons is "smart growth".

Loves traffic, good for business.

Supports including human services - need coordination of formal and informal human services related transportation.

CCC not providing enough service on canal area shuttle bus. Developer willing to pay 80% of Bourne rotary reconfiguration costs.

Concerned with hospital access. Refrigerator trucks waiting for Island ferries run all night in residential areas. Need a Capewide transportation marketing program. Supports the planned transportation summit.

Sinage is terrible, e.g. 495 sign - Bourne, Sagamore Exit 2. Would like a test site for an electronic information kiosk.

Commends CCC. Sagamore Christmas Tree Shop on-ramp puts 3 lanes into two. Southside Connector is the answer.

Steamship Authority parking is a problem for Bourne.

Do Something.

Falmouth, Wednesday December 1, 1999 @ 7:00 pm

Shining Sea bike path and Otis intermodal center not in current transportation plan. Against Canalside Commons development, no more Mashpee development, need to address some key congestion areas.

Rail Links and rail service are important to the Cape.Seamless transportation has been looked at by the Steamship Authority and needs to be considered. Tourist industry locked into Saturday to Saturday rentals - changing this would be a good TDM strategy. Against locations for Canalside and Mashpee development - need to partner with developers to locate development in places that are accessible and desirable. Canalside Commons should be located in Buzzards Bay. How do we influence transportation agencies to help realize the RTP?

Encourage rail service to come closer to Cape Cod, say Buzzards Bay or Wareham. Need to establish an intermodal center at Otis. Should reconsider focus on access to the Cape and bridges. Need to extend the Woods Hole/Falmouth bike path to Bourne but keep rail.

Need sensible solutions to solving access issues.

Instead of tolls, how about a parking fee at Steamship Authority lots? Supports rail service to Woods Hole, bike paths are a secondary consideration.

Access via rail utilizes existing third canal bridge.

Bikeways and walkways are a viable transportation option, not just a recreational amenity. Need more bicycle facilities (racks) and more security.

Concerned with the structural condition of the current bridges. Consider the impact of closing a

bridge, need a replacement for bridges. Rail service would not reduce bridge traffic. In the mean time, buy as much land as possible.

Buses are an economical way of moving people. Consider overnight parking in Falmouth and Bourne.

Has the Army Corps of Engineers said anything about shutting down the canal RR bridge for repairs? Sidewalks need to be better designed, currently they are often discontinuous. High curbs are a danger to bicyclists and there must be better sweeping done on bike paths/lanes.

Rail service between Braintree and Hyannis carried 110,000 passengers a year. Bike paths can co-exist with rail - rights of way are typically 66'. The existing RR bridge bids for structural repairs and painting will be opened on December 31, 1999 and work on the cables and electrical systems will be advertised in the future. The second phase of work will require a 90 day shutdown of the railroad bridge.

Do not give up railroad tracks. Encourage bus companies to provide direct service to T.F. Green airport.

Need to develop water transportation, say from Falmouth to Hyannis. Bus service to other places than Boston is needed.

Bike paths are not a substitute for trains. Need to coordinate with the Chambers of Commerce about infrastructure to support plans for more tourism.

Rotaries and roundabouts work. Mentioned Southside Connector.

Need to teach people how to use rotaries.

Need better sidewalks. Hopes that rail and bikeways can be developed together.

Current development allows parking lots to be used to bypass congestion. This creates a dangerous situation that needs to be addressed.

Supports alternative forms of transportation. Big supporter of off Cape ferry terminals.

Supports off Cape ferry terminals. Supports reversible lanes on bridges.

Need a shopping center in Bourne.

Need to maintain bridges. Development in Buzzards Bay is a bad idea - it is in a flood plain and was flooded in 1937.

Don't forget private sector transportation; Limousines, rental cars, taxis, non-profit services, and

school buses. Alternate forms of transportation are needed but linking these alternative modes is important.

Concerned with neglect of bridges and impacts of ferry service.

Have to consider implementation of tolls more carefully.

Against Canalside development. Don't use railroad right of way as a bike path. Enforce existing speed limits.

Commuter Rail will never come to Cape Cod but a tourist train is a possibility. The state advertised a contract to put an information kiosk in Sandwich but canceled the bid as nobody wanted it. In favor of Sagamore rotary improvements and bike paths.

Supports off Cape ferry terminals. Year round train service would not be profitable.

Keep the rotaries as they are.

Bourne, Monday February 1, 2000 @7:00 PM

- Has concerns with rotaries, traffic diversions from main routes are not tourist but locals. The concept of diverting traffic from route 6 to Sandwich Road will not work, Sandwich Road can not handle the traffic. Closing Exit 1 off ramp on Route 6 will impact the local cut through traffic. Need a less complicated solution for Sagamore flyover.

- $5 million or less per year is sobering. Would like to see better signage on route 3 and route 6. Use the breakdown lanes for moving traffic to 495.

- Understand that the Sagamore rotary flyover is a "done deal" - why are we discussing alternatives?

- Concerned with canal area traffic. A great deal of the accidents in the area go unreported. Need to enhance the flow of traffic on weekends. Feeders to main roadways are a major problem. Encourages short term solutions verses the flyover. Signage and driver education are also things to consider.

- Why don't they have a police detail directing traffic on the bridges, for example at Scenic Highway and the Bourne Bridge?

- Park police cruisers at places like the rotaries.

- Close curbcut from Pancake House on Bourne rotary. Gas tax would have an effect on cape residents, visitors would buy gas off-cape.

- Traffic from MacArthur Blvd. Is often using rotary for a "u-turn". Can something be done to remove this traffic from the rotary?

- Keep the Southside connector on the list of projects in the RTP. We also need to widen or double deck the existing bridges. Increase room taxes or rental car fees but don't tax locals.

- Collecting tolls at the county line could generate tolls by others on the other side of the county line. The Canalside project is willing to fund the Bourne rotary improvements.

- The environmental review process for the Sagamore flyover will start this Spring and could take 3 years, it is expected that the project will happen and funding is not of any imminent concern. The Canalside Commons project will contribute a great deal of funding to mitigate their traffic impacts. Cashless tolls, as well as increases in gas and room taxes will not work.

- Does not support a gas tax (supported land tax) but is not interested in more pavement on Cape Cod. Do not send traffic through anyone's village. Electronic billing is hostile and an erosion of freedom. No flyover, ugly is no excuse for efficiency.

- Why is the Steamship Authority putting a large parking lot in Cataumet?

- How many Cape Cod Commissioners and staff live over the bridge?

- To add any more traffic to Sandwich road would be criminal. Need the Southside Connector. No SSA parking lot in Cataumet.

- Bottleneck at the rotary is the problem. Elimination of rotary in Hyannis solved that problem.

- Where is the Army Corps of Engineers? We need to widen both bridges; take out the sidewalks and suspend a bike/ped facility underneath - this would allow for adding a 5th lane to be used in the peak direction.

- What is the relationship between the SSA and the CCC with respect to the Cataumet parking lot?

- Concerned with the new presentation, CCC has ignored Bourne, are they now "blowing smoke" - the Cubellis plan will fix the problem.

- Thank you, CCC, keep doing your job.

- Safety is his (Police Chief) goal, not volume. Nobody from the CCC has consulted his staff on traffic problems. He and his staff are willing to work with the CCC.

- Does not want any more impact to his village of Sagamore. Must never expand Sandwich Rd., well maybe an expansion as far as the ice rink. If you are stuck in Cape traffic -"too bad". The SSA is a dictatorship that need their wings clipped.

- The Army Corps of Engineers has talked to the CCC on numerous occasions. I was on the Bourne planning board and the CCC has done a lot for Bourne.

- Opposed to the closure of exit one on-ramp, it would affect his trips across the Sagamore bridge.

- Funnel off Cape traffic to the islands via an off-cape port

- Sandwich Rd. widening is not the answer, it would ruin Sagamore Beach. Southside Connector.

- Holding up the Canalside Commons development is wrong.

- I have not heard MHD mentioned once.

- Make it clear to the Cape Cod Commissioners that Bourne is not happy with what the CCC transportation staff is doing.

- You did not talk about the mass transportation system. SSA lots should be located off-cape, especially in existing lots that are not used on weekends.

Public Meeting Summary of Comments

+ = Support
- = Opposition
c = Comment
? = Question

Yarmouth Town Hall 11/13/00

+	Railroad and alternate modes
c	land use causing traffic, careful of new road building
c	handicap access
-	Air travel expansion
-	Barnstable municipal airport expansion
+	Relocation of Barnstable municipal Airport
c	do not encourage greater traffic
+	Bike and pedestrian facilities
????	Environmental impacts of Barnstable Municipal Airport

Public Meeting Summary of Comments

+ = Support
- = Opposition
c = Comment
? = Question

Eastham Town Hall 11/15/00

+	Peak spreading
+++	Route 6 safety improvements in Eatsham
++	Sidewalks and sidewalk improvement on Route 6
++	Curb cut consolidation to enhance safety
c	Speed enforcement on Route 6 in Eastham
cc	Use old rights of way for new roads
+	Left turn restrictions on Route 6
++	Public road safety program
c	clutter and signage causes driver confusion
c	bike safety needs to be addressed on Route 6 corridor
??	Signalizing intersection at Governor Prence Road
??	How many Cape drivers are involved in Cape accidents
??	Automated speed enforcement technology
+	Pilot speed enforcement and safety project for Eastham
+++	Driver education on driver safety
++	Variable message signs warning of congestion

Public Meeting Summary of Comments

+ = Support
- = Opposition
c = Comment
? = Question

Mashpee Senior Center: 11/20/00

++	Improved signage at the Sagamore and Bourne rotaries
+	Tax incentives for positive transportation related impacts
??	How do we accommodate the demand on the infrastructure?
c	alternate canal road needed to alleviate congestion
-	Road widening

1995

Scenic Highway / Sagamore Rotary / South Side Connector Task Force

Resolution: Be It Resolved that, the citizens of the Town of Bourne are committed to improving highway safety along the Bourne Scenic Highway. The Commonwealth of Massachusetts has also recognized the dangerous conditions along this roadway and has undertaken some interim improvements. It has been recognized that the more permanent solution would be the construction of the South Side Connector. Since the Massachusetts Secretary of Transportation has requested that the Cape Cod community to develop a consensus on its preferred approach we offer this resolution.

By vote of this Town Meeting, the Town of Bourne requests that State Representative, the Honorable Charles Decas, in whose district the Scenic Highway lies, to transmit to the Commonwealth of Massachusetts, Secretary of Transportation, James J. Kerasiotes, our desire that the necessary analyses to update the existing South Side Connector plans begin and proceed in an expeditious manner toward construction.

Motion: We so Resolve.

CapeCod®
CHAMBER OF COMMERCE.

ohn D. O'Brien
ief Executive Officer

November 11, 1999

Cape Cod Commission
Attn: Margo Fenn, Executive Director
3225 Main Street
PO Box 226
Barnstable MA 02630

Dear Ms. Fenn:

We were completely surprised by the op-ed piece in the November 10th Cape Cod Times written by Bob Mumford and Ken Brock which, among other proposals, advocates abandoning the initiative that would replace the Sagamore Rotary. Our Transportation Committee (where Mr. Mumford is a member) has consistently supported the replacement of the rotary, and in fact, design work and preliminary environmental issues have been funded by the State Highway Department. This design by Rizzo and Associates has been favorably accepted by most business and civic officials from Bourne.

A one hundred and eighty degree turn at this stage sends a very confusing message to State officials.

For at least thirty years Cape residents and legislators have advocated for plans that would eliminate this bottleneck. Most view this lengthy public policy discussion as a failure of government to fix a fundamental transportation problem that has both safety and economic implications.

While some respondents to your public hearings held in May might want to return to a life style that reflects nostalgia for a time when there was less traffic, the fact remains that our year round population is at least 210,000 and some of our Upper Cape Towns are basically suburban in that significant percentages of their population commute to off Cape employment.

Our research indicates that most of our summer visitors come from Massachusetts and that most of our second homeowners and retirees come here first as visitors and then invest in property

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because it is an attractive place to live. We can slow the growth with land purchases and zoning regulations but in America people can travel where they want and live where they want.

Additionally, our work with the Islands and the local communities with regard to freight issues has been eye opening in that the complexity of these issues cries out for effective implementation of solutions that are well thought out and sustainable because they reflect concern for both economic and social issues.

Our citizens are confused when in the past week we read that the regional transit authority is under fire and now our regional planning agency takes an abrupt 180° turn on an issue most of us thought was settled.

No wonder Congressman Delahunt is asking for a transportation summit.

Sincerely,

John D. O'Brien, CEO
Cape Cod Chamber of Commerce

enclosure

cc: Congressman William Delahunt
Senator Henri Rauschenbach
Senator Therese Murray
Representative Demetrius Atsalis
Representative Nancy Caffyn
Representative Thomas George
Representative Shirley Gomes
Representative Ruth Provost
Representative Eric Turkington
Robert Mumford, Transportation Program Manager, CCC
Kenneth Brock, Chair Transportation Committee, CCC

JDO:sb

Cape Cod Times
WEDNESDAY, NOVEMBER 10, 1999

MY VIEW

Being here vs. getting here

By BOB MUMFORD
and KEN BROCK

For many of us, joyous memories of a summer on Cape Cod, though plentiful, can too often be tarnished by the reality of aggravating traffic jams. Sometimes it's just too hard to get here from there. Too many cars, you say – and we agree.

In May, the Cape Cod Commission heard ideas for traffic and transportation improvements at a series of forums across the Cape. We told you about several projects being considered by state transportation officials or others, including widening Route 3 from Duxbury to Bourne; replacing the Sagamore and Bourne rotaries; building a new interchange between Exits 6 and 7 on Route 6; installing new ramps at the junctions of Routes 6 and 134 in Dennis; widening Sandwich Road along the Cape Cod Canal; building an east-west connector between the Bourne Rotary and Route 6; and adding new high-speed ferries.

Nearly all those proposals focus on getting more people to the Cape. But at the May forums most people expressed almost the opposite desire – that is, for the Cape's transportation emphasis to be on the needs of people who are already on the Cape. You told us:

- We need to address the Cape's inadequate public transportation, which has become a critical issue for everyone, particularly for our elderly and low-income populations.
- We need to look carefully at land uses that create traffic and make an effort to remove land from development.
- We need to devote attention to the many Cape roads that have specific points of bottleneck.
- We need to spend more money on carefully considered road projects that are consistent with the Cape's character.

BOB MUMFORD

KEN BROCK

We heard you. And we want to share with you the proposals that the Cape Cod Commission supports for inclusion in the March 2000 update to the Cape Cod Regional Transportation Plan, the primary means by which federal and state funds are allocated to the Cape's transportation needs.

At a series of meetings next week (*see sidebar*), the commission will propose a transportation strategy for the region's future that we believe is appropriate for Cape Cod – a strategy that helps ensure the Cape Cod of the future is a good place to live, work, play and visit.

Integral to that strategy is our recognition that transportation funds are limited. The commission's transportation program staff has determined that about $28 million is needed every year to meet the Cape's transportation needs. The reality is that the Cape is likely to receive less than $10 million per year for the foreseeable future.

With that limitation, we need to change the focus of transportation dollars to projects that move people once they are on Cape Cod. Although we strongly support safety improvements at the access points to the Cape, we cannot support proposals that aim to bring more and more cars here.

Instead, we believe we should invest in the Cape's roads and in public transportation. A greater emphasis on public transportation will help to meet the human services needs of our entire population.

Some highlights of our specific recommendations include: abandoning plans to replace the Sagamore Rotary with a $20 million interchange, instead making more modest safety improvements and reallocating remaining money to improve bus service on Cape Cod; completing the transportation center in Hyannis; substituting Cape-to-Islands ferry service with service from off Cape to reduce unnecessary travel on Cape Cod; extending the Cape Cod Rail Trail westerly from Dennis to Barnstable; improving Interchange 9 (Route 6 at Route 134) in Dennis; and making other needed road and intersection improvements on Cape Cod in a manner that respects the Cape's unique rural character.

In May, you spoke and we listened. At next week's meetings, we'd like your reaction to our specific proposals.

Meetings

The Regional Transportation Plan meetings will take place as follows:

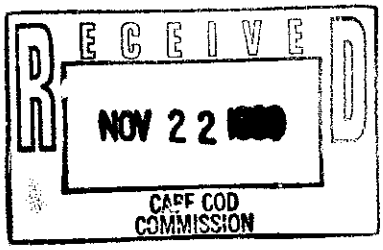
- Monday, Nov. 15, 7 p.m. in Room C of the Orleans Town Hall on School Road, Orleans
- Tuesday, Nov. 16, 2 p.m. in the Assembly of Delegates Chamber, First District Court House on Main Street (Route 6A), Barnstable
- Wednesday, Nov. 17, 7 p.m. at the Human Services Building at 270 Quaker Meetinghouse Road, Sandwich

Additional written comments about transportation issues and projects may be sent to the Cape Cod Commission at P.O. Box 226, Barnstable, MA 02630

Bob Mumford is transportation program manager for the Cape Cod Commission. Ken Brock is chair of the commission's transportation committee and Truro's representative to the commission.

Cape Organization for Rights of the Disabled
1019 Iyanough Road #4, Hyannis, MA 02601

(508) 775-8300 / 1-800-541-0282 (both numbers Voice and TTY) Fax (508) 775-7022 e-mail: cordwin@capecod.net



November 18, 1999

Bob Mumford and Ken Brock
Cape Cod Commission
P.O. Box 226
Barnstable, MA 02630

Dear Mr. Mumford and Mr. Brock:

I am writing to express the transportation concerns that the Cape Organization for Rights of the Disabled has for Cape Cod. We provide services to approximately 2,000 people with disabilities each year and have over 200 dues-paying members. Transportation is a frequent issue raised by our members and those who use our services. I hope that you will give our comments a fair reading even at this late date in your process to develop a regional transportation plan.

The fundamental concerns we hear revolve around physical access to transportation and availability of public transportation, aside from the basic complaint voiced by so many Cape Codders that "the traffic is worse than ever." Areas where physical access is a major concern include the following transportation means:

Taxis: There are no accessible cabs on the Cape. People with disabilities who don't have their own vehicles generally can't use a service that allows people to get a ride in a hurry, or a ride to places where public transportation doesn't go, or a ride at a time when public transportation isn't operating. Boston has conditioned taxi licenses to require that operators have accessible vans that can serve people with and without disabilities. Cape communities need to pursue this course as well. Wheelchair transit services are not a feasible option because they are extremely expensive and geared, we believe, towards providing medical trips paid for by health insurance.

Ferries: Progress has been made in the past ten years to improve access to the ferries of the Steamship Authority and Hy-Line. But other ferry services to the islands are not accessible to people with physical disabilities and the Steamship Authority seems to be backing down on past commitments to ensure access to its older boats as they are worked on. More access is needed.

Airlines: The planes operating out of Barnstable Airport are generally inaccessible to people with physical disabilities. We have talked about simple boarding lifts being put in place but have not made progress. The alternative is for someone with a disability to be strapped into a small boarding chair and lifted onto the planes. This is dangerous and undignified; it essentially means

many people with disabilities do not consider the airport as part of their transportation options. Better solutions are needed.

Commercial buses: Plymouth & Brockton has a number of lift-equipped buses that can be used with limited advance reservation time and the company has worked hard to make this system work well. But Bonanza bus line does not have lift-equipped buses, which limits a major transportation option for people with disabilities who want to go to Boston from Falmouth and Bourne or from Hyannis to points west such as Providence and New York. This is a big barrier.

Summer trolleys: The summer trolley service operated by the CCRTA is not fully accessible and the trolleys that have lifts have problems. We have raised the issue with the CCRTA but substantial progress has not been achieved.

With respect to availability of service, the main suggestion we have is to support efforts that include more fixed-route bus service. In the fifteen years our organization has existed, we have seen dramatic advances in the hours and breadth of operation for the b-bus and other CCRTA services. In 1984 the b-bus was just a five-day, 9:00-to-3:00 operation with no fixed routes, something important to note within the context of the criticism which the CCRTA is receiving these days. There has been progress, and except for the trolleys, the CCRTA accessibility is excellent. But the more their fixed route services can be smoothly integrated with each other— while remaining *user friendly*— the better. The increasing ridership on the CCRTA lines is testament to progress but we suspect there remains no wide public sense that people can hop a bus from Hyannis to Woods Hole. Perhaps nomenclature should be changed? Hearing about the Sealine makes one think it runs a tourist route and not what is, practically speaking, an intercity route for workers. The same goes for the H2O line, clearly a creative term but not necessarily what sells public transportation these days. And maybe mini park-and-ride areas and express services would help increase ridership? It certainly doesn't help public transportation use when there's virtually no parking at the Hyannis bus terminal and the renovated commuter lot at Exit 6 is overflowing on many days. And the hour-plus ride with frequent stops between Hyannis and Woods Hole does not, we suspect, encourage people to give up their cars. The population growth on the Cape means we must think in more urban ways and have more progressive systems in place such as the intermodal transportation center in Hyannis, should it ever become reality.

Lastly, we encourage integrating to the highest degree possible special human service transportation programs with public transportation. In many cases this is not possible, and doing so with a strong philosophical motive that supercedes practical human concerns is dangerous. But more effort will save funds, increase mainstream ridership, and not isolate groups of people from the rest of the world. We know various initiatives on this have been implemented and we only encourage more. Our organization has pushed hard, for instance, for children with disabilities to ride regular school buses, not "special" buses that isolate and strengthen always damaging segregation. The same intent should be behind our public transportation endeavors with human service agencies.

Please do not hesitate to contact me with questions or for further information.

Thank you.

Sincerely,

Bill Henning
Director

YARMOUTH POLICE DEPARTMENT

424 ROUTE 28 WEST YARMOUTH MASSACHUSETTS 02673-4796
Telephone (508) 775-0445 — Fax (508) 775-4997

CHIEF OF POLICE
Peter L. Carnes

November 23, 1999

Kenneth Brock, Chair
Cape Cod Commission Transportation Committee
3225 Main St.
P.O. Box 226
Barnstable, MA 02630

Dear Mr. Brock:

As the Cape Cod Regional Transportation Plan is coming up for review, I need to emphasize that the issue of safety for motorists, bicyclists, and pedestrians necessitates far greater attention and a more comprehensive approach than is presented in the current version of the plan. Indeed, there is no distinct section of the plan that concisely and adequately discusses the nature of traffic safety here on Cape Cod, whereas public safety officials from police and fire chiefs to EMS personnel see the matter first-hand nearly every day. In Yarmouth alone we experience approximately 700 crashes, 250 injuries, and 2 traffic-related deaths per year. On a countywide basis, over the past five years these numbers are on the order of 25,000 crashes, 14,000 injuries, and over 70 deaths, quite troubling figures. As the Regional Transportation Plan calls for a policy of "keeping what we've got – that is, maintaining and operating our existing system, "these numbers can reasonably be expected to increase as traffic volume increases.

Reduction in these numbers will not come about solely through an engineering approach to the problem, which largely characterizes the current transportation plan; i.e. the focus is very much on traffic volume, congestion, and demand management.

Assessing traffic safety meaningfully on Cape Cod entails not just the roadway engineering, but must also incorporate the law enforcement, public safety, and community action initiatives (such as addressing the issue of older driver safety). As the Regional Transportation Plan is the dominant transportation policy document for Cape Cod, I urge that the issue of traffic safety be given the same attention, analysis, and prominence as other chapters. This would make the plan a more viable and pertinent document, and by this inclusion could help to secure state and federal monies for traffic safety initiatives here on Cape Cod.

I would be more than happy to discuss this matter with you further. I also suggest that two local traffic safety groups, The Cape Cod Traffic Officers Safety Committee, and Keeping Cape Cod Alive, would be valuable sources to work with in addressing traffic safety on Cape Cod.

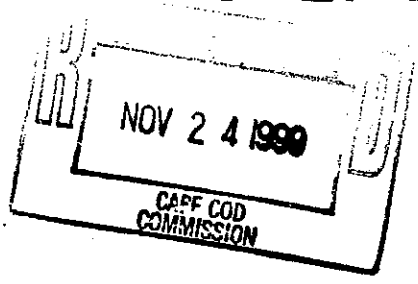
Sincerely yours,

Peter L. Carnes
Chief of Police

xc: file

TOWN OF BOURNE
Planning Board

TOWN HALL
BUZZARDS BAY, MA 02532



**** MEMO ****

DATE: November 23, 1999
FROM: Kimberly Simone, Kimberly
Bourne Planning Board
RE: Press Release; Cape Cod Commission

Enclosed please find a copy of a press release that was written by the Bourne Planning Board and sent to the Bourne Selectmen,as well as local and state papers. We are forwarding this information to you because we would like your support in focusing attention on the lack of transportation planning for the Bourne area of Cape Cod.

Bourne is the "gateway to the Cape" and serious consideration should be given to the complexities and demands of a town that has BOTH bridges and ALL the roads that provide access to and from the Cape.

The Bourne Planning Board is very dissatisfied with the planning currently being done by the Cape Cod Commission, and feels strongly that the Commission is not interested in helping Bourne cope with the monumental task of "peak season" traffic.

Your support of the Bourne Planning Board's position would be greatly appreciated, and the Board looks forward to having a response from you on this issue.

TOWN OF BOURNE
Planning Board

TOWN HALL
BUZZARDS BAY, MA 02532

November 19, 1999

******PRESS RELEASE******

Thursday, November 18, 1999, the Bourne Planning Board voted to send a letter to the Selectmen requesting initiation of actions required for the Town of Bourne to withdraw from the Cape Cod Commission. The Planning Board requests that the Bourne Selectmen draw up an Article for Town Meeting requesting authorization for the Selectmen to petition the State Legislature to amend the legislation creating the Cape Cod Commission to remove the Town of Bourne from the Commission's jurisdiction.

This action was the result of the Planning Board's extreme dissatisfaction with the Cape Cod Commission staff's proposals for the long-range transportation plan for Cape Cod. A key element of the plan is the elimination of the state-proposed plan for long awaited improvements at the Sagamore Rotary and their recommendation for no improvements at the Bourne Rotary.

The Cape Cod Commission staff's decision to take no action on the traffic congestion in the Town of Bourne and to use the resulting congestion as a means to discourage tourism and thereby control growth on the mid and lower Cape severely affects the quality of life of the residents of the Town of Bourne. This policy would have extreme negative impacts on the Town of Bourne, as Bourne is divided by the Canal and basic services such as police, fire, ambulance, and rubbish collection as well as the day-to-day activities of its residents would be disrupted. The Cape Cod Commission staff's long-range transportation plan not only offers no relief to the Town of Bourne, but also suggests a toll on the Bourne and Sagamore Bridges to further traffic congestion and pay for road improvements outside of Bourne.

The Board was also upset that the Cape Cod Commission staff is proceeding with the long-range plan although it has still not completed the Upper Cape Transportation Study - a study the Cape Cod Commission is five years late in completing.

Furthermore, the Board cites a lack of communication between the Cape Cod Commission and town officials on matters of utmost importance to Bourne. The Cape Cod Commission actions would have the most dramatic impact on the Town of Bourne, and yet the Commission and their staff have neglected to consider town officials and Bourne residents. The Board feels the Town of Bourne is being forced to suffer while the Cape Cod Commission uses traffic congestion on the bridges as a means to discourage more tourism on Cape Cod thereby containing its growth. "The Town of Bourne should not be utilized simply as the doormat for access to Cape Cod," said Planning Board Chairman Jack Howarth.

The Planning board has also requested the Cape Cod Commission hold another public hearing on the transportation plan in Bourne so that Bourne residents will be able to voice their concerns and opinions to the Cape Cod Commission staff.

Town of Barnstable
Police Department

Office of Chief

John J. Finnegan
Chief of Police

Michael J. Martin
Deputy Chief

Craig A. Tamash
Deputy Chief

P.O. Box B
Hyannis, MA 02601

Admin: (508) 775-0920
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www.barnstablepolice.com

November 29, 1999

Kenneth Brock
Cape Cod Commission Transportation Committee
3225 Main Street
P. O. Box 226
Barnstable, MA 02630

Dear Mr. Brock:

As you are aware, the current Cape Cod Commission Regional Policy Plan was approved in 1996 and is due for review.

The plan currently advocates land use and growth management policy to deal with traffic and transportation issues. This may be the preferred route to deal with the future growth, however my concern is with the lack of policy dealing with current traffic safety issues.

Last year, the Town of Barnstable experienced 2,755 motor vehicle accidents of which 555 involved personal injury and 5 fatalities. These are numbers that we must be concerned with on a daily basis. We must deal with the traffic issues we have, not only seek to mitigate any future growth.

Growth is coming. Land, sea and marine based alternatives to automobile travel will certainly help to offset this growth, but I seek your assistance in incorporating law enforcement and public safety issues in policy revisions.

My staff, including the Barnstable Police Department Traffic Unit, would be glad to meet with you and address these issues of mutual concern in order to present a plan that truly address all the transportation needs of Cape Cod.

Sincerely yours,

John J. Finnegan
Chief of Police

Keeping Cape Cod Alive Inc.
A Community Safety Program
A Non-Profit Charitable Corporation
P.O. Box 739, West Barnstable, MA 02668-0739

December 10, 1999

Kenneth Brock, Chair
Cape Cod Commission Transportation Committee
3225 Main St.
P.O. Box 226
Barnstable MA 02630

Dear Mr. Brock:

Keeping Cape Cod Alive is a community traffic safety program that has been active on Cape Cod for the past decade. Its primary focus is traffic safety not only for motorists, but for bicyclists and pedestrians who wish to enjoy Cape Cod by moving about "car free." It needs to be recognized that Cape Cod is unique to some very difficult traffic safety issues, among them being:

- a largely rural street system, lacking in proper layout and traffic mitigation and control features for increased volumes of traffic
- high traffic volumes and congestion in the summertime
- an older year-round population with age-related diminished capacities to drive and a younger, more accident prone tourist population in the summer including the attraction to summer college students working here in July and August.
- a lack of integrated sidewalks
- a lack of safe accommodation for bicyclists on roadways shared with motor vehicles
- problems with drunk, drugged, and aggressive drivers (Barnstable County is regularly on the top 10 list in the state for drunk and drugged driving incidents).
- a seatbelt use rate of less than 60%

These are some of the issues characterizing traffic safety issues on Cape Cod, and

there are others, which **Keeping Cape Cod Alive** is working on.

Of concern to us is that the Cape Cod Regional Transportation Plan does not explicitly discuss at an adequate level this issue of traffic safety for the public to recognize, and for the pertinent public safety agencies to address in a comprehensive fashion. We feel strongly that the current mandated update of the Regional Transportation Plan must include a section on traffic safety, to be as thorough as is the discussion on air quality due to vehicular traffic. It should be noted that in the last 5 years over 14,000 people on Cape Cod were injured on our roadways! At a minimum, this section should include data on the number of crashes, injuries, and fatalities of motorists, pedestrians, and bicyclists as an indicator of traffic safety here on Cape Cod, and as a measure of the effectiveness of the steps taken to improve safety. Failing this, we feel that the Regional Transportation Plan is deficient in adequately presenting the full scope of transportation issues to Cape Codders, and therefore deals only tangentially with this serious issue.

We would be happy to discuss with you further the incorporation of an informative traffic safety chapter in the Regional Transportation Plan, and to suggest the format of same.

Thank you for your attention to this matter as you address final changes in the plan.

Sincerely yours,

Dr. Paul Marz, President
Keeping Cape Cod Alive Inc.
Inc.

Krista C. Hayes
Keeping Cape Cod Alive

TOWN OF YARMOUTH

1146 ROUTE 28 SOUTH YARMOUTH MASSACHUSETTS 02664-4451

Telephone (508) 398-2231, Ext. 292 — Fax (508) 398-2365

OLD KING'S HIGHWAY REGIONAL HISTORIC DISTRICT COMMITTEE

Date: 12/16/99

The members of the Yarmouth Old King's Highway Committee wish to voice our unanimous support for the recent Cape Cod Times editorial "A Matter of Jurisdiction" and the 12/2/99 Register editorial "The local vs. state versions of highway control" dealing with the Massachusetts Highway Department's (MHD) "proposed improvements" to historic Route 6A and the issue of jurisdiction. Both editorials mentioned the current non-relationship of the MHD with the Regional Old King's Highway Historic District Commission. It should be mentioned the MHD also chooses to maintain a non-relationship with any Old King's Highway (OKH) Committee of the 6 member towns.

One editorial asks "Why can't the state work with the (OKH) commission to do what is best for the road and community?" This certainly is not an unreasonable question. The plain and simple answer seems obvious in our opinion: the benefits of collaboration between governmental entities far outweigh the outcomes of confrontation.

Why then the current stance from the Mass. Highway Department? They would have us believe they have *carte blanche* control over all matters pertaining to state roads in our neighborhoods. In the pending legal matter concerning planned Route 6A improvements by the state in Sandwich, they would have us believe it is a matter of road safety over historic preservation. We all know it is far more complex than this. The issue here is governmental arrogance by a state agency. The Mass. Highway Department is refusing to work with local government, when simple and courteous cooperation could have resolved the issue without this costly litigation.

Simply put, all private, state and local entities must comply with the Old King's Highway Act of 1973 when the planned work is within the boundaries of the Old King's Highway District. The Mass. Highway Department has simply refused to appear before any of our local Old King's Highway Committees. Our Yarmouth OKH Committee believes this situation must be corrected by changing the culture within the Mass. Highway Department. The MHD must be directed to comply with the application procedures set forth in the Old King's Highway statute for all road work planned or conducted within the Old King's Highway District, be it road widening, tree removal, traffic lights, sidewalks or any other change. This would also give the tax-paying public more notice of any state planned road improvements in their neighborhoods.

It is extremely important that we closely follow the events of this Route 6A issue as the outcome will affect the entire Old King's Highway District. We feel the Massachusetts Highway Department must answer to some entity on the local level. In the matters involving road improvements within the Old King's Highway District, we feel that entity is our Old King's Highway Committees, as mandated by Chapter 470 of the Acts of 1973.
Attachments: CCT, The Register

CCT
11/12/99

A matter of jurisdiction

■ The state highway department should yield to the Old King's Highway Regional Historic District Commission.

For those who have only a few hours to catch a glimpse of Cape Cod, there is no better way to capture the essence of this place than a leisurely drive down Route 6A, the Old King's Highway.

From Scorton Creek in Sandwich to the historic homes and greens in Barnstable, Yarmouthport, Dennis and Brewster, the two-lane road bows to stately oaks and hugs marshes and bogs as it meanders along the northern edges of the county.

Dating to Colonial times, the byway has been well protected by the Old King's Highway Regional Historic District Commission, which was created by legislative act in 1973.

Over the years, the commission has faced down private developers eager to open yet another strip mall and private homeowners, who have wanted to alter historic properties or paint new homes garish colors.

In all those battles, the character of this two-rod (33-foot wide) road has generally remained intact.

But the greatest threat to this road is not those who would build huge malls or ugly homes. The greatest threat comes from our own state.

The state highway department, years behind in improving Cape roadways where they are truly needed, such as Route 6 interchanges, Route 28 and Route 132, seems intent in ripping up Route 6A without consulting the historic district commission.

The latest example of this indifference and arrogance is the state's work on Route 6A in Sandwich.

Fortunately, a Barnstable District Court judge has stopped work along 1.6 miles of the road from Tupper to Chipman roads, including the stretch outside Merchant's Square shopping center. The state wants to widen, repave some portions of the road and install drainage, some ugly light fixtures and pavement markings – the kinds of things that will forever change the historic character of the scenic road.

Judge Joseph Reardon ruled that the work must stop until an appellate judge decides the larger issue of jurisdiction raised in an earlier suit.

In 1996, the historic district commission sued the state over construction on Route 6A, arguing that the state highway department must get approval from the commission to do any work on the road, according to the authority given to the commission by the state.

A Barnstable Superior Court judge ruled in the highway department's favor in July 1997. The decision was immediately appealed.

On Friday, Reardon correctly ruled that the whole intention of the historic district was to maintain its traditional appearance and character. He asked how the state could possibly be exempt from the rules.

"I'm totally appalled and mystified," he said. "This is like big father watching over us little guys on the Cape. We're not capable of governing ourselves?"

Robert G. Brown of Yarmouthport, the commission's lawyer, said it's a matter of jurisdiction.

"The whole crux of the issue is they refuse to come before the commission," he said. "It's important because the act establishing the Old King's Highway commission specifically gives each local committee the authority of preserving the setting of the district," Brown argued. The commission is made up of committees from six towns – Sandwich, Barnstable, Yarmouth, Dennis, Brewster and Orleans.

Why can't the state work with the commission to do what is best for the road and the community? And who knows what is best for both? The state or local committees?

The answer should be obvious.

The Register

EDITORIAL PAGE

12/2/
12/2/99

The local vs. state versions of highway control

Nobody likes to be told what color to paint their trim. So it comes as no surprise that the Old King's Highway Regional Historic District, over the course of its history, has had to defend itself against critics who say it is arbitrary, ill-informed, overstepping its bounds, disrespectful of applicants and sometimes just plain ornery.

It has, at times, been every one of these things. Most recently, a Dennis case has highlighted the continuing need to make sure the district's procedures are as user-friendly as possible.

But the Old King's Highway has arguably been one of the most important tools in the Cape's continuing, uphill battle to prevent obliteration of its character.

In an ideal world, none of the negative aspects would ever be allowed to infect the process of keeping watch over Route 6A's aesthetic and architectural integrity. But its unpaid board members are human, subject to petty dislikes, bad tempers and lapses in judgment just like the rest of us.

Look at the big picture: With only a few egregious exceptions over the decades, the Old King's Highway has done its job and done it well.

This is in stark contrast to another public agency with "highway" in its name, one which has time and again run roughshod over the Cape's environment, character and even safety, and which is now locked in a court battle with the Old King's Highway.

The legal contest between Mass. Highway Department and the OKH is focused today on Sandwich and a portion of Route 6A the state pavement-promoters want widened and straightened.

But all six towns in the historic district, which stretches from Orleans to Sandwich, would do well to keep an eye on and perhaps even intervene in this case, because it goes to the heart of defending Cape Cod.

Mass. Highway goes by the book and demands wide, ugly roads. The OKH wants some say in how 6A is handled.

Mass. Highway cuts down trees along Route 6 in the interests of "safety" and then admits that the vegetation was sacrificed in order to install large urban expressway-like signs marking exits that everyone was locating just fine, thank you. It has kept pushing for double-barreling from Dennis to Orleans when by the numbers, the stretch of Route 6 from Yarmouth to the canal has suffered many more fatalities.

It has jousted with local conservation commissions about storm runoff (we're thinking about Bass River), allowed unsafe curb cuts that locals begged be denied (the Scenic Highway in Bourne comes to mind), required bulldozing of a too-wide swath of land surrounding a narrow bike path (this was in Harwich) and tried to ram widening of a particularly historic stretch of Route 6A in Yarmouth down the throats of citizens who rebelled and successfully lobbied to get the thoroughfare designated as a special scenic roadway.

The bottom line is that Mass. Highway's attitude of "our roads" has often gotten in the way of sensible, careful planning on the Cape. The Old King's Highway, even when it has strayed from its path, has remained an advocate for keeping the Cape the way we who live here like it.

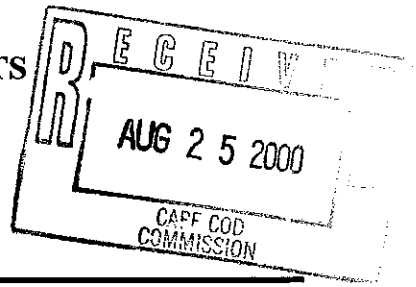
WOODSTOVE

By Sherrill Smith

THE COMMONWEALTH OF MASSACHUSETTS

HIGHWAY DEPARTMENT

INTEROFFICE MEMORANDUM



To: Luisa Paiewonsky, Director, BTP&D

Through: Thomas F. Broderick III, P.E., Chief Engineer

From: Bernard E. McCourt, District Highway Director, District 5

Date: August 23, 2000

Subject: Cape Cod Commission
Draft Year 2000 Regional Transportation Plan

Enclosed are additional comments on an excerpt of the subject document. Our goal is to ensure that the MPOs' proposed long range transportation improvement strategies are consistent with the intent of the Federal Metropolitan Transportation Planning Proposed Rule (23 CFR Parts 450 and 1410) and District 5 priorities.

These comments relate to "Draft Strategies for Mass Transit and Highway" which has been presented at meetings of the Joint Transportation Committee held July 14 and August 11. A more comprehensive review will be undertaken upon receipt of the final draft document.

Re: **Section I – The Transportation Plan and Strategies**

Paragraph 3 begins "The strategies are consistent with the 5 goals adopted for this plan update..." *The 5 goals need to be listed in this section. Otherwise the reader is unaware of what the goals are and how the forthcoming strategies relate to them.*

The third sentence in Paragraph 4 makes reference to "... 'Districts of Critical Planning Concern' – or similar mechanisms – will need to be designated to protect transportation capacity." *This statement needs further clarification. The Regional Transportation Plan should not be an extension of the Cape Cod Commission's regulatory function.*

Re: **B. Highway Strategies** – Rural Roads Initiative

Paragraph 2 states that " Elements of the initiative are expected to encourage:

- consideration of alternative guard rail materials such as wood and weathering steel;
- consideration of appropriate sign size and placement to prevent blocking views and to minimize clutter."

There are safety, maintenance and economic considerations in selecting guardrail which is best left to the appropriate jurisdiction. For example, there is anecdotal evidence of at least one Commonwealth motorist being impaled by splintered wooden guardrail as a result of collision. The high installation cost and potential legal liability associated with wooden guardrail may limit its use. The Federal Manual of Uniform Traffic Control Devices (MUTCD) governs the installation of regulatory, warning and guide signs on all public roadways nationwide.

Paragraph 3 states that "The policies anticipated from the rural roads initiative will also discourage – roadway widening. *Our understanding of the proposed Cape Cod and Islands Rural Roads Initiative is that it would cover all publicly owned or maintained local, county, state and federal roadways. Joint Transportation Committee members are on record as stating that roadway widening is not always a "bad" approach to improving operating conditions. Roadway widening may be warranted to correct safety problems due to poor roadway geometry or a high accident history. Widening may also be warranted to increase capacity (e.g. turn lanes) and reduce congestion by separating the through and turning vehicular movements at intersections, and to accommodate bicycles and pedestrians.*

The Rural Roads Initiative is designated as a High Priority Project. ***Is this initiative intended to be the sole basis for developing the Regional Transportation Plan?*** *Any design guidelines that may be developed for this initiative must take into account current and future traffic volumes based on land use projections, in addition to the functional classification of the roadway.*

Re: **B. Highway Strategies** – Access Management

Paragraph 2 references access management strategies relative to existing conditions such as "closure of any unnecessary driveways, narrowing of unduly wide driveways." *Depending on the administration of the roadway, this is a permitting issue controlled by local or state jurisdiction.*

Paragraph 3 references access management strategies relative to new development such as "(limiting) access to new development from existing secondary roads, not principal roadways." ***What success has the Cape Cod Commission achieved to date in implementing such strategies using its regulatory powers?***

Re: **B. Highway Strategies** – Strategies for transportation on Cape Cod

Strategy #2 is to "Preserve rights-of-way for transportation and/or conservation."
Please delete "and/or conservation." By definition, rights-of-way are strips of land over which facilities such as highways, railroads or power lines are built. Therefore, ***Strategy # 2 should be amended to read "Preserve rights-of-way for transportation purposes."***

Strategy #3 is to "Encourage practices that limit the number of cars coming to Cape Cod such as – (for example) Substituting Cape-to-Islands ferry service with service from off Cape to reduce unnecessary travel on Cape Cod." *One of the consolidated Metropolitan Planning Factors is to "Increase the accessibility and mobility options available to people and for freight." Why not advocate the increased advertisement of off Cape ferry services as an alternative to Cape to Islands ferry service?*

Strategy #4 is to "Focus and reallocate transportation funds in ways that will improve travel within Cape Cod. *This strategy is clearly too parochial and in conflict with the proposed Metropolitan Planning Rule (23 CFR Part 1410.322 – Transportation Plan Content). Paragraph (a) states in part "The plan shall include both long-range and short-range strategies/actions, including, but not limited to, operations and management activities, that lead to the systematic development of an integrated intermodal transportation system that facilitates the safe and efficient movement of people and goods in addressing current and future transportation demand."* ***Please note that '...addressing current and future transportation demand' is new, added language.***

Joint Transportation Committee (JTC) members are on record as criticizing strategy #4 because it fails to acknowledge that residents of Cape Cod commute daily over the bridges to work on the mainland side of the canal and return to the Cape in the p.m. period. They are concerned that if one of the bridges were to suffer a structural failing which caused the bridge to be closed to traffic, the increased traffic going over the other bridge would create virtual gridlock and additional safety concerns. For this reason, ***JTC members have publicly stated that the Cape Cod Commission staff must begin to plan for a third bridge over the Canal, as the age of the two existing bridges exceed their respective useful life.***

Please note, the study of a third Canal Bridge is not currently contained in the list of "Recommended Projects (Not Prioritized)" section of the Financial Plan portion of the draft Transportation Plan. The District agrees that for purposes of safety and efficiency in managing current and future transportation demand, planning for a third bridge must begin now. ***The District strongly recommends that the Third Bridge Study be listed in Section B. Highway Strategies – <u>Studies to Pursue.</u>***

Strategy #5 is to "Make sensible road and intersection improvements."
We recommend substituting "efficient and cost effective" for "sensible." One of the measures identified is to "Minimize roadway clutter – guardrail and discretionary signs and markers." *The installation of guardrail is a safety issue, governed by the FHWA's Roadside Design Guide and the State Highway Design Manual. Also, please clarify/define "discretionary signs and markers"? Warning, regulatory and guide sign placement is governed by the Federal MUTCD.*

Another measure cited is "Consider modern roundabouts instead of traffic signals."
We recommend substituting "as an alternative to" for "instead of." Please specify the circumstances and environment in which roundabouts would be more feasible than signalization.

The following measures are also cited:

- Install traffic signals only at intersections of public roads and only when absolutely necessary;
- Improve access management/manage "curb cuts";
- Proper driveway location, spacing and frequency;
- Proper turn restrictions and access controls;
- No traffic signals at private driveways

The above use of "proper" is subjective and undefined. Also, the above are land use issues which are best dealt with through zoning controls instituted by local government and state regulations.

Two additional measures cited are:

- Leave some roads alone – reconstruct and maintain – do not "improve";
- Implement "Footprint Road Program" – to allow reconstruction without any dimensional changes

Local funds and the Chapter 90 Program are available to municipalities to maintain their local roads.

Re: **B. Highway Strategies** – Studies to Pursue

Study #1 is "Continue EIR process to replace the Sagamore Rotary with an interchange and explore more modest safety improvements for the Canal area." *We recommend that Study #1 be amended to read "Support MHD's EIR process to replace the Sagamore Rotary with an interchange. Explore improvements for the Canal Area."*

Study #2 is "Development of toll facilities for the Cape Cod region. The toll facility study will explore the feasibility of establishing tolls that will include variable pricing to help alleviate peak period congestion without impacting local mobility needs." *Hasn't this already been explored? There is no alternative for Cape Cod residents who work on the mainland side of the Canal to return home without driving over one of the bridges. Therefore, peak period congestion invariably includes both local and tourist traffic.* ***We question how tolls can be administered without impacting local mobility needs, economic vitality and environmental justice concerns.***

Please provide us with a complete version of the final draft Cape Cod 2000 Regional Transportation Plan when available. We also recommend that MPO ratification of this document is deferred until the regional Joint Transportation Committee and this office completes a more comprehensive review. If you have any questions, please contact Mark Carmichael or Timothy Kochan.

TK/tk
cc: Doug Kelleher, MHD BTPD
Bob Mumford, Cape Cod Commission ✓
BEM
MVC

TOWN OF EASTHAM
2500 STATE HIGHWAY, EASTHAM, MA 02642-2544
(508) 240-5900
FOR ALL DEPARTMENTS
(508) 240-1291
FAX

November 13, 2000

B. Clay Schofield, Transportation Engineer
Cape Cod Commission
PO Box 226
Barnstable, MA 02630

sent via fax: 508-362-3136

Dear Clay:

I am writing this letter to follow up on the brief discussion we had last week at the planners meeting at the Commission, and to offer formally my comments on the draft Regional Transportation Plan. Let me begin with my comments.

1. I am surprised that the maps included in Section 4 show no change in the roads in Eastham over the next 25 years. The maps do show conditions in Wellfleet deteriorating over that time, and it would seem logical that Route 6 in Eastham will be impacted. We would also expect our current 40% year-round and 60% seasonal population figures to reverse during this time period.

2. The layout of the maps in Section 4 would be more useful to us if the entire Town of Eastham was on one map. Currently, the Town is split between the Outer Cape maps and Lower Mid-Cape Area maps.

3. Crash statistics in Section 5 indicate that Route 6 in Eastham has a very high rate of crashes and fatalities. Therefore, wouldn't it make sense that the Route 6 – Eastham Safety Improvements should receive a higher priority on the list of proposed projects? Shouldn't safety receive more weight in calculating project benefit?

4. Another reason that Eastham deserves special consideration is for being the only Town on the entire Cape without a Route 6 bypass. The road literally divides the Town in half, and negatively impacts community character in addition to making travel for locals difficult and dangerous. The plan should address these issues.

Finally, I am enclosing some material of Route 6 in Eastham compiled by the Police Department. As I told you last Thursday, the Police Chief believes that safety on Route 6 has actually improved based on accidents per million vehicle miles traveled. In addition, I am sending you a copy of a discussion paper prepared by Christopher Lovelock for the Eastham 2025 Committee. It gives more of a local perspective on the Route 6 problem.

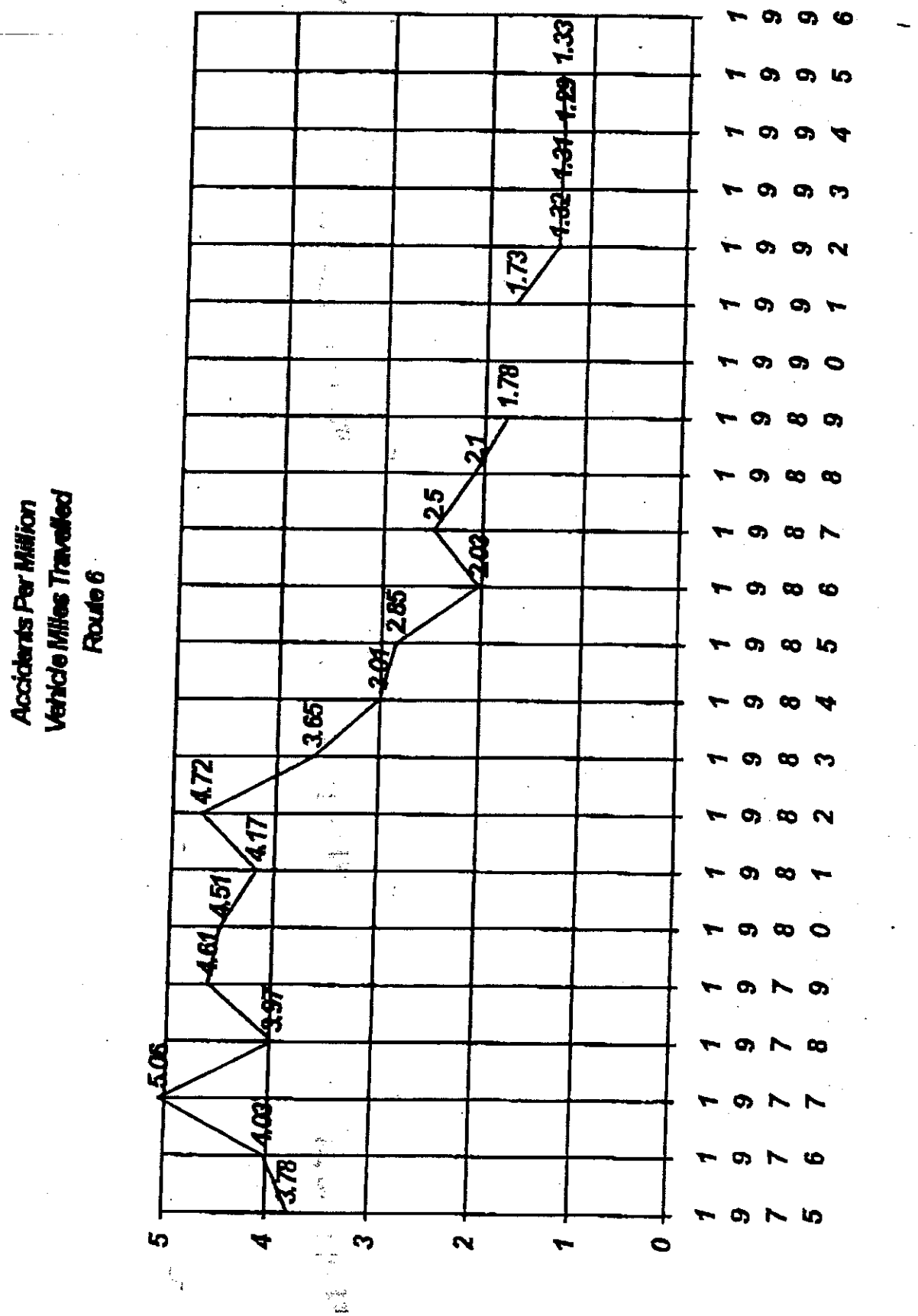
Thank you for the opportunity to comment on the plan and for providing us with extra copies for the DPW Director and Town Administrator. We have distributed copies of the draft to the Board of Selectmen and Planning Board, and I hope you get a good turnout on Wednesday. Please call me with any questions.

Very truly yours,

Rex Peterson
Town Planner

Rt. 6 Accident Rate Summary

ear	Citations	# of Accident	Avg. Traffic	Acc. Rate
1975	723	94	11,000	3.78
976	784	95	10,600	4.03
1977	650	124	11,000	5.06
978	727	100	11,300	3.97
1979	1114	115	11,200	4.61
980	912	114	11,358	4.51
1981	759	118	12,718	4.17
982	911	129	12,267	4.72
1983	1598	103	12,660	3.65
984	1767	87	12,940	3.01
1985	2292	109	17,193	2.85
986	3429	97	21,445	2.03
1987	3429	108	19,403	2.50
988	3930	104	22,198	2.10
1989	3747	87	21,925	1.78
990	2949			
1991	3742	96	24,920	1.73
992	3249	73	24,757	1.32
1993	2613	79	27,046	1.31
1994	2197	78	27,103	1.29
1995	2721	81	27,279	1.33
1996				
1997	2308	100	27,300	1.73
1998	1927	105	27,346	1.65
999	2232	101	27,569	1.64


Accidents Per Million
Vehicle Miles Travelled
Route 6
5
4
3
2
1
0
5.06
4.03
3.78
3.97
4.61
4.51
4.17
4.72
3.65
3.01
2.85
2.02
2.5
2.1
1.78
1.73
4.32
4.31
4.29
1.33
1 9 7 5
1 9 7 6
1 9 7 7
1 9 7 7
1 9 7 8
1 9 7 9
1 9 8 0
1 9 8 1
1 9 8 2
1 9 8 3
1 9 8 4
1 9 8 5
1 9 8 6
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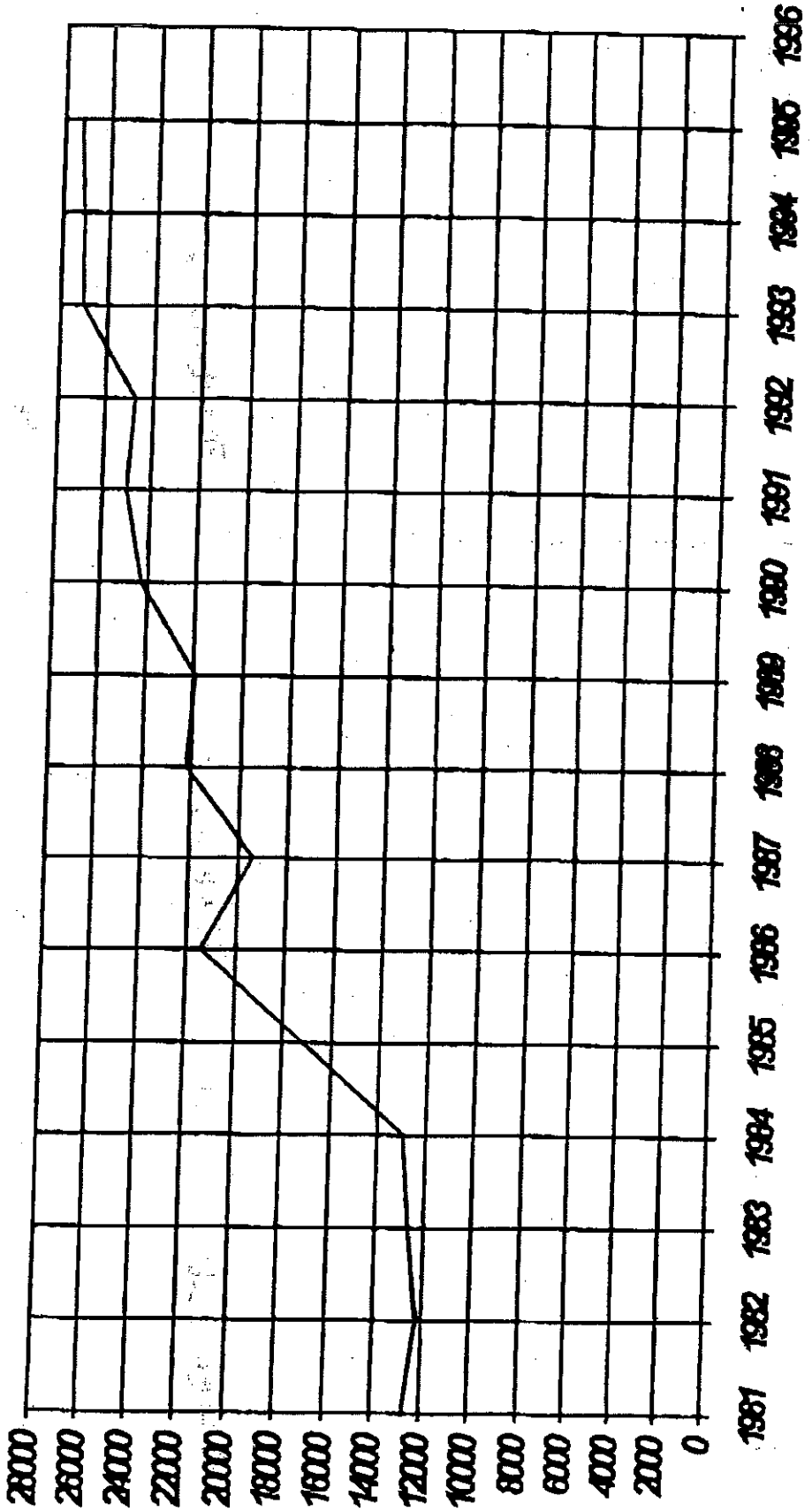
Average Daily Traffic
Town of Eastham
Route 6
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996

Discussion Paper for 2025 Committee

EASTHAM AND ROUTE 6

Although managed by the state, US Highway 6 is part of the original federal highway system and runs more than 2,000 miles from the Atlantic coast at Provincetown to Bishop, California, on the eastern escarpment of the Sierra Nevada mountain range. Its role as a transcontinental route was long ago taken over by the Interstate highway system, but it remains Cape Cod's major highway.

The busy six-mile, four-lane segment of Route 6 that runs through Eastham splits the town in two. Some use the name "Old County Road" as their address, the Town erroneously calls it "State Highway," and a few signs proclaim it as "Grand Army of the Republic Highway" (a mouthful that nobody uses). To mark Eastham's 350th, perhaps we could give it a new name, like "Outer Cape Highway." For both residents and visitors to the town, Route 6 is where most of the town's civic and retail buildings are located, and also many lodging places. Yet much of the highway remains fronted by private residences and occasional short stretches of undeveloped woodland or wetlands.

PROBLEMS WITH ROUTE 6

For *traffic planners*, Route 6's problems center around congestion (mostly seasonal and time-of-day in nature) and safety. For *town planners*, the concerns are how to minimize the divisive impact of the highway on the neighborhoods either side and how to enhance Eastham's two town centers—the Town Hall/Windmill area and the Brackett Road area in N. Eastham. Proposed new developments in the latter area are providing the stimulus to create a district of critical planning (DCPC) concern along both sides of the highway. Both types of planners worry about more development along the highway leading to more curb cuts, more traffic, and more risk of both congestion and accidents.

For *retail establishments* located alongside the highway, the challenge is (1) to get noticed by people traveling in fast-moving vehicles and (2) for drivers to turn safely off the highway (often involving a left turn from the fast lane).

Many *local residents* see the road as both dangerous and something of an eyesore in some locations. They also complain about traffic noise and about light pollution at night from some retailers (primarily gas stations).

ADDRESSING SOME KEY ISSUES

Congestion.
Although Route 6 is frequently busy, congestion is encountered primarily during the summer season, reaching its worst levels on Saturdays ("change-over day") when tenants are arriving and leaving. Northbound congestion occurs near the Eastham-Wellfleet line when traffic bound for Provincetown and beaches must merge from two lanes to just one.

Suggestions for discussion. It's time for rental agencies on the Cape in general (and the Outer Cape in particular) to offer weekly rentals that start on days other than Saturdays. At least one Eastham owner of several cabins/cottages uses Sunday to Sunday rentals and reports that his tenants love it. Work patterns have changed dramatically in the last 20 years and most people have far more choice about when they go on vacation than they formerly did. A survey of tenants about their preferences might provide some surprises.

If electronic signs were installed at intervals along the length of Route 6 (throughout the Cape) drivers could be informed of where congestion is occurring and how much the estimated delay is, thus giving them the option of changing their plans.

Safety.
Accident statistics show that Route 6 is becoming progressively more hazardous:

	1997	*1998*	*1999*
Total accidents in Eastham	91	113	122
Fatal accidents	1	1	1
Injury accidents	40	45	54
Property damage only	50	67	67
Type of accident (if recorded)			
Head-on collisions	0	2	3
Angle impact	44	36	33
Rear-end collisions	39	60	65

The statistics do not record the causes or circumstances of the accidents in question, but the growing number of rear-end collisions are likely caused by the vehicle in front slowing or stopping to make a turn when the driver of the second vehicle is not paying attention and/or following too closely relative to the speed at which the vehicle is traveling and its braking capability. Side impact collisions may result from cars changing lanes or entering the traffic stream from a side road. Injuries and deaths are more likely to result when (a) speeding is involved, (b) seat belts are not worn by occupants, and (c) the vehicle lacks air bags. Despite a recent reduction in the speed limit, much traffic still speeds, increasing both the likelihood and severity of accidents.

Suggestions for discussion. A more visible police presence, more vigorous enforcement, and signs warning that speed limits are enforced by radar—even specifying the fines imposed on violators—should help reduce the incidence of speeding. Enforcement should also be directed at tailgating and other dangerous driving practices. Installation of traffic lights (or a roundabout) at Governor Prence Road would serve to reduce traffic speeds and facilitate traffic wishing to turn onto (or off) Route 6 at this location.

To reduce the incidence of rear-end collisions when vehicles are making left turns, the following options should be evaluated:

(a) banning left turns in many locations through such measures as signage and creation of one-way streets (perhaps on just a seasonal basis).

(b) rebuilding certain sections of Route 6 to include a median barrier.
[c) creation of left-turn lanes at key intersections, such as Brackett Road
(d) reducing the number of curb cuts on Route 6 by requiring adjoining property owners to consolidate their access
(e) building new back roads that parallel Route 6 behind existing frontage properties, and then requiring residents to exit their homes from the rear.

A basic problem for people living between the rail trail and Route 6 from Settler's Path (south of Governor Prence Road) to the Rotary, is that the only way to get to Orleans without backtracking is by Route 6. On the heavily populated west side of the highway, one solution would be to extend Smith Lane (the brief continuation of Rock Harbor Road near the rotary) north to South Eastham Street, thus allowing local residents to drive to Orleans by a new back route. This solution would be controversial because it would involve land-taking and some filling or bridging wetlands, but perhaps it should be raised because it could take a lot of traffic off Route 6 and reduce the risk of turning accidents.

Enhancing the Two Town Centers

The presence of the highway detracts from the physical appearance of both the Town Hall/Windmill area and the Brackett Road area.

Suggestions for discussion. Undergrounding of overhead utilities would improve the appearance of both locations and remove a traffic hazard. Better landscaping would enhance the Village Green area (some trees instead of utility poles would be nice).

A more drastic (and thus both expensive and controversial) solution in the Town Hall area would involve creating a new Route 6 by-pass behind town hall (going northbound, the highway might be realigned to diverge to the east at Rabbit Run, enter a cut-and-cover tunnel that would take it below the Field of Dreams, and emerge to re-enter the present highway just before the Salt Pond). "Old Route 6" could then be narrowed to two lanes from the Mobil Station to the Police Facility, with new sidewalks installed on both sides and trees planted to create an appealing, village-like environment.

In North Eastham, the proposal has already been advanced to cut a new road from Route 6 at Collectors World through to Brackett Road (and perhaps north beyond Brackett), with retail activity being recentered along this new local road to create a genuine village center that might also include affordable housing and other uses.

CONCLUSION

The suggestions described above are intended simply to stimulate discussion and debate. We need to be bold and creative if we are to have any hope of resolving some of the problems that Route 6 poses for Eastham. Members of the 2025 Committee should feel free to propose additional topics for discussion and to put forward alternative solutions.

November 15, 2000

Margo Fenn
Executive Director
Cape Cod Commission
3225 Main Street
Barnstable, MA 02630

Dear Ms. Fenn:

MassHighway Planning has reviewed the Draft Regional Transportation Plan (RTP) for the Cape Cod Metropolitan Planning Organization (dated November 2, 2000). In order to ensure that this document will be ready for MPO endorsement, please incorporate the following comments and send a revised draft to my office by December 1, 2000.

- Many statements in the RTP reflect opinions and positions of the Cape Cod Commission that are not necessarily shared by other MPO members (some specific examples are cited below). The RTP should carry a more neutral tone which state the problems and potential solutions more objectively.

- Please add to the cover of the RTP the following language, *"Prepared on behalf of the Cape Cod Metropolitan Planning Organization,"* then list the four MPO members.

- Page 1, Introduction, last bullet - please provide some additional language regarding the objectives of Environmental Justice. The additional language should state that the RTP not only ensures that all segments of the population are able to fully participate in the transportation planning process and has access to transportation facilities, but also are not unjustly burdened by transportation improvements in the region.

- Page 2, Section 1.1, Transportation Equity Act for the 21st Century (TEA-21),
  second bullet - please revise from *"MPOs are responsible for adopting the RTP; the Governor and the MPO approve the TIP"* to *"MPOs are responsible for adopting the RTP and the TIP. The Governor approves the State Transportation Improvement Program."*
  third bullet - please change *"air quality consistency..."* to *"air quality conformity..."*
  sixth bullet - please insert the word "ozone" to the following phrase, *"metropolitan areas which are (ozone) nonattainment areas..."*

- Page 8, Section 1.3.1, The "Right" Transportation System - please revise the phrase *"...by better management of "people-flow" and more efficient use of automobile capacity, the traditional attempt to build our way out of congestion can be avoided"* with more objective, neutral language.

- Page 10, Section 1.3.4, Traveling Smarter - the sentence, *"Excessive signage adversely affects the scenic, historical and environmental characteristics of Cape Cod."* should be revised with language such as, *"Signage, while recognized as a significant element to a safe and efficient transportation network, should be installed in such a way as not to visually detract from the region's scenic environment."*

- Page 10, Section 1.3.5, Working Together - please revise the phrase, *"...new partnerships that bring together the various levels of government will be formed to make sure that transportation "solutions" do not become problems."* We suggest more neutral language such as, *"new partnerships that bring together the various levels of government will be formed to assure a common goal of achieving transportation safety while preserving the scenic character of the region."*

- Page 12, Section 1.4.2, Regional Planning - please delete the paragraph that reads, *"It is the policy of the Cape Cod Regional Transportation Plan that transportation solutions be consistent with Barnstable County Ordinance 96-8, otherwise known as the Cape Cod Commission's Regional Policy Plan and to successor ordinances..."* While MassHighway recognizes the desire for some consistency among regional policies and plans, the RTP, and the members of the MPO, is not necessarily bound to the terms of the Cape Cod Commission's Regional Policy Plan.

- Page 13, second paragraph - please insert "unnecessary" to the statement *"survey responses... a majority of responses were opposed to (unnecessary) widening of roads and intersections..."*

- Page 14, second paragraph - please delete the sentence that reads, *"The transportation plan goals and objectives are consistent with the RPP guidance."*

- Page 14, Section 1.4.3, Local Comprehensive Plans – It is not clear what is meant when reference is made to *"the EOTC project..."* is this in reference to Executive Order 418? Also, this paragraph appears incomplete. Please revise accordingly.

- Page 15, Section 1.5.1, The "Right" Transportation System - any description of the Rural Roads Initiative should be consistent with the wording agreed to by MassHighway in the *Rural Roads Initiative, Memorandum of Agreement between the Massachusetts Highway Department, the National Park Service/Cape Cod National Seashore, the Cape Cod Commission, the Martha's Vineyard Commission and the Nantucket Planning & Economic Development Commission.*

- Page 16, 1.5.4, Traveling Smarter - there should be some reference made to the summer use of variable message boards on Route 6.

- Page 16, 1.5.5, Working Together - additional mention should be made to the efforts of the Cape Cod Transit Task Force. In addition, we believe it is important to list all the members participating in this effort (Steamship Authority, Cape Cod National Seashore, Southeastern Mass. Private Carriers Assoc., etc.)

- Page 17, Project Evolution,
  second paragraph, last sentence - please revise to state that the TIP is approved annually (not the RTP).
  third paragraph, please change, *"The initiation of a project begins... or a local planning process or a combination of both."* to, *"Many projects begin... or a local planning process or by MassHighway."*

- Page 19, second paragraph - this paragraph seems to be a reiteration of the previous paragraph. Please revise accordingly.

- Page 20, second paragraph, first sentence - please add *"by the Cape Cod Joint Transportation Committee... in coordination with MassHighway and other MPO members..."*

- Page 20, third paragraph, first sentence – please revise to read *"Projects listed in the current TIP need to be identified in this RTP. Likewise, subsequent TIPs will need to be consistent with this and/or future versions of the RTP."*

- Page 22, 2.2.1.2, TIP Amendment Process - delete the last bullet in reference to Non-Federal Aid projects.

- Page 26, The Transportation Planning Process - please add a step at the beginning of the flow chart for *"Local, State and Federal Policies and Procedures."* This stage should be tied into the *"Regional Transportation Goals and Objectives"* step.

- Page 27, It is not clear why the 2001 TIP projects listed here? Further explanation is needed.

- Page 40, Park and Ride Facilities - please delete the last part of the sentence which reads *"...but reduced the opportunity for creative parking so the actual capacity was reduced."*

- Page 43, Section 3.3.1.4, Alternatives,
  third bullet - *"Traffic calming along the Scenic Highway segment along the Canal,"* this appears to be a recommendation that belongs in the Canal Area Transportation Study.
  seventh bullet, please revise to read *"Maintain existing right-of-way, where feasible, to limit..."*

- Page 47, Section 3.3.2.3, Alternatives,
  fourth bullet - please revise *"Control land use"* to read *"Encourage land use controls that limit traffic impacts."*
  Fifth bullet, please revise *"Reducing sign confusion..."* to a more positive statement such as, *"Work with MassHighway to improve traffic signs within the region, such as ..."*

- Page 49, Section 3.3.3.2, Problem Identification - second paragraph, last sentence, language regarding the Rural Roads Initiative should be consistent with the language agreed to in the MOA.

- Page 51, Section 3.3.3.3, Alternatives - third bullet, please revise to read *"Work with communities along the Route 6A corridor to encourage commercial development within village centers."*
  seventh bullet, please delete the bullet which reads *"A policy of no new signalization or road widening should be considered."*

- Page 57, Section 3.4.2.1.1, Roadway Network, third paragraph - please revise this paragraph. See the language recommended above regarding working with MassHighway to improve traffic signage.

- Page 58, Section 3.4.2.2, North/South Transportation Link: Route 134 - please state that MassHighway has not only advertised the Exit 9 project, but has recently awarded a contract for the work.

- Page 63, Section 3.4.3.2, Transportation Issues and Problems,
  first paragraph, first sentence - please substitute *"preclude"* with *"make it difficult..."*
  second sentence, substitute *"The majority of the public opinion"* with *"many in the area believe..."*
  third paragraph, second bullet, statements which indicate a conditional support of the Route 132 project should be removed.

- Page 70, Open Space, third paragraph, last sentence - please revise to recognize that other factors, in addition to transportation, primarily local land use decisions, play a key role in the potential loss of open space.

- Page 72, Future Expectations, last paragraph - please delete the sentence, which reads *"This component can be a powerful tool in achieving other objectives consistent with the Cape Cod Commission's Regional Policy Plan."*

- Page 77, Section 4.2.2, Where We're Headed, third paragraph - the first sentence should be revised to state the need for a balance in transportation and land use decisions.

- Page 78, Section 4.3, Regional Issues and the Regional Policy Plan - this section needs to be revised to state the differences between the RTP and the RPP, and that while there is a desire for a balance between the two, this is not always the case.

- Page 82, Section 4.3.2, Scenic and Historic Concerns, third paragraph - as previously stated, language regarding the Rural Roads Initiative should be consistent with MOA. We suggest the paragraph be deleted and the following language be used as a substitute, *"The Cape Cod Commission, together with the Martha's Vineyard Commission, Nantucket Planning & Economic Development Commission and the Cape Cod National Seashore have received federal TEA-21 funding for the Cape and Islands Rural Roads Initiative. The Rural Roads Initiative is a study of design guidelines for public road construction and/or reconstruction projects, including recommendations for traffic controls, which meet standards for public safety while preserving the unique quality of rural roadways."*

- Page 88, first and second paragraphs - please revised these paragraphs with a more neutral tone (i.e. please delete statements such as *"spending public money needlessly"*).

- Page 101, Section 4.5, Future Funding Expectations - while it is important to note "innovative strategies" for funding projects, it should also be noted that the likelihood of strategies such as collecting tolls at the Barnstable County line is not likely in the foreseeable future.

- Page 113, Section 5.2.2, Recommendations - please revise the first sentence with more objective language regarding the need to achieve a balance between safety and the preservation of the scenic characteristics of the region.

- Page 116, first paragraph - please add the earlier statement regarding cashless tolls and other forms of "Congestion Pricing" as unlikely funding alternatives for the immediate future.

- Page 118-120, Section 6.2, Roadway Strategies, second paragraph - please use the language recommended earlier to describe the Rural Roads Initiative. For additional language, please refer to the MOA.

- Page 121, Access Management Strategies, last bullet - please revise to read *"Improve coordination among local land use permitting and state curb cut permitting."*

- Page 121-122, General Strategies for Transportation on Cape Cod,
  2: please add *"when feasible"* after *"development should be prohibited."*
  3: *"Encourage practices that limit the number of cars coming to Cape Cod."* Please reword to read, *"Encourage alternative modes of transportation to and from Cape Cod."*
  4: *"Focus and reallocate transportation funds in ways that will improve travel within Cape Cod to improve existing traffic problems"*. We do not agree with, and recommend deletion of, *"The addition of automobile capacity for driving to Cape Cod should not be considered before on-Cape and/or automobile travel demand are improved to handle existing traffic."*

5: second bullet - please reword *"Avoid 'over building' transportation projects"* with *"Work with MassHighway, and other project proponents, to address safety improvements that are appropriate to the scale and function of Cape Cod roads."*

third bullet - please reword *"Minimize roadway clutter - guardrail and discretionary signs and markers."* with, *"Work with MassHighway, and other project proponents, to locate necessary safety apparatuses (guardrail, signs, markers, etc.) in such a way as to achieve the desired safety improvement, while not visually detracting from the region's scenic environment."*

fifth bullet - *"Leave some roads alone, reconstruct and maintain, do not "improve,"* if the intent of this recommendation is to consider a program that would allow for the reconstruction of roads without geometric changes, the following recommendation (sixth bullet) for a "Footprint Road Program," seems to address this point.

- Page 123, Studies to Pursue, 1 – please revise the wording to read, *"Continue the EIR process to replace the Sagamore Rotary, while at the same time pursue more modest alternatives for interim safety improvements for the Canal Area."*

- In a letter dated November 8, 2000, MassHighway provided the information needed for the financial chapter of the RTP. This information should be used to revise *Chapter 7 – The Financial Plan & Project Ranking*.

These changes are necessary to move the RTP forward for endorsement at an early January 2001 MPO meeting. We look forward to receiving the revised draft and working with you and your staff on other regional matters. If you have any questions, call me at (617) 973-7858 or Doug Kelleher at (617) 973-8053.

Sincerely,

Kenneth S. Miller

fw

Luisa Paiewonsky
Director
Bureau of Transportation
Planning and Development

cc: Kenneth Miller, P.E., Deputy Director
Bernard McCourt, District 5 Director
Edward Silva, FHWA
David M. Luce, Manager, MPO Activities
Doug Kelleher, MPO Activities
Mark Carmichael, District 5
Bob Mumford, Cape Cod Commission

CAPE COD COMMISSION

3225 MAIN STREET
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(508) 362-3828
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E-mail: frontdesk@capecodcommission.org

December 4, 2000

Ms. Luisa Paiewonsky
Bureau of Transportation Planning & Development
10 Park Plaza
Boston MA 02116

Dear Ms. Paiewonsky:

Thank you for your comments (dated November 15, 2000) on the draft *Cape Cod 2000 Regional Transportation Plan*. My staff has reviewed the plan and made many of the changes that you suggest. A copy of the text is being sent by regular mail and by electronic mail to Mr. Doug Kelleher of your office (in acrobat format). Please note that the exhibits are not included as these did not change from the November 2 draft.

Several of your comments (8th, 31st, and 33rd bullets) make reference to the Regional Policy Plan. For example, in the eighth bullet, you requested that we delete from the Plan the paragraph that reads:

> "It is the policy of the Cape Cod Regional Transportation Plan that transportation solutions be consistent with Barnstable County Ordinance 96-8, otherwise known as the Cape Cod Commission's Regional Policy Plan and to successor ordinances."

Please note that this language is nearly identical to that which you approved as the designated representative of the Massachusetts Executive Office of Transportation & Construction as well as all of the other MPO members, including Massachusetts Highway representative Bernard McCourt, on March 28, 1997 (see *Cape Cod 1997 Regional Transportation Plan*, p. 89.).

TEA-21 guidance (item 7, April 8, 1999) supports this statement, as the Regional Policy Plan is "the area's comprehensive long range land use plan." The Regional Policy plan was developed with an extensive public outreach effort, surveys, hearings and meetings, and was adopted as County law under the Massachusetts statute known as the Cape Cod Commission Act. Therefore, we respectfully request that this and other references to the RPP remain in the 2000 Plan.

In a climate of financial challenges, I would also like to emphasize the importance of ensuring a reliable funding stream for transportation projects. Barnstable County is one of the fastest growing areas in the Nation and requires that we work together on creative funding strategies in order to preserve and enhance the Cape's transportation system.

Sincerely,

Margo L. Fenn
Executive Director

MLF:LAM:lm

cc: Cape Cod Commission Members
Cape Cod Regional Transit Authority Members
Cape Cod Joint Transportation Committee Members

Lower/Outer Cape Community Coalition
Transportation Task Force
P.O. Box 797
Eastham, MA 02642
508.255.2163
fax 508.255.4928
coalition@c4.net

Community Health Access Project (CHAP)
Transportation Working Group
c/o Barnstable County Dept. of Human Services
P.O. Box 427
Barnstable, MA 02630
508.375.6628
fax 508.362.0290
humanservices@capecod.net

TRANSPORTATION TASK FORCE

I am speaking as Chairperson of the Lower/Outer Cape Community Coalition Transportation Task Force. This Task Force has been involved in transportation issues on the Lower Cape for over ten years, and the Task Force recently merged with the Community Health Access Project (CHAP) Transportation Working Group. The Task Force has testified before the Commission frequently over the years, with much the same message at each session. As recently as your meeting in May, we again stated that the Commission needed to incorporate human service needs into your transportation mission and your work. We are pleased to see that our request is being addressed and the Task Force, composed of over sixteen agencies, providers, grant officials, wholeheartedly endorses the approach you are recommending. We will support that change in direction and funding in whatever manner we can, and will do so both in public and in-house.

There are several suggestions that could be acted on in a more timely fashion if agreed upon after brief discussions:

1). Public outreach regarding Cape public transportation needs to be increased and focused. A Cape-wide marketing approach involving all appropriate parties, which includes existing plans, needs to be established.

2). Public amenities around public transportation need to be pursued as soon as possible, such as: better and larger printed signage at bus stops, roads, etc.; safe, comfortable benches and enclosures, with a Cape-like look, need to be placed for public use. This will not only enhance public transportation but will aid both local residents and tourists. It needs a united countywide approach; a county toll-free transportation information line needs to be established to connect people with existing services.

3). We (due in large part to Task Force efforts) have transportation coordinators at both the RTA and P&B. What is needed to improve those services, especially on the Lower Cape is "connecting services" in-town and intra-town vans or small size buses or trolleys which can pack people up and take them to main transportation stops or centers. More of this type of service is needed especially for welfare-to-work childcare stops, the Ellen Jones Community Dental Center, etc.

4). The Task Force is very pleased that, at our request, a Transportation Summit is now being planned. We do not intend to get involved in any of the current political activity, however we have always stated that all parts of the Cape community transportation network be involved in such a summit. We are willing to be active in planning such a meeting, and will be happy to share all of our national, state and local resources.

Mary Lou Petitt

Subject: idea2k.htm
Date: Mon, 29 Nov 1999 12:32:23 -0500
From: "Janet J. Fredericks" <jfredericks@whoi.edu>
Organization: Woods Hole Oceanographic Institution
To: trans@capecodcommission.org

I won't be able to make the meeting on Wednesday (12/1/99). So, I'd like to make a few comments now.

I think the statement (idea2k.htm) reflects the sentiments of the meeting I attended last May. I wondered why the extension of the Shining Sea Bikeway to North Falmouth is not included. It is on the TIP and was discussed on 5/19/99 and Falmouth has voted $75000 (11/99) for the design and planning of the extension.

I am curious if there's been any discussion at the TIP planning meetings, either through the CCC or the CCJTC, about an intermodal center at the MMR? It is a stated objective in Falmouth (both the Board of Selectmen and the Falmouth Transportation Management Commission have promoted the concept).

Also, I noticed that someone has received a grant and is working on development of standards for Cape Cod roadways. The Transportation Management Commission is very interested in having standards for roadways which reflect the rural character we are hoping to maintain. We have seen that in projects where the Town funds the project, and the Engineers work with abutters, lovely footpaths are what people want. Davisville Rd in East Falmouth is an example of this. Then, when Chapters funds are used, and the project doesnot go through the local process, sidewalks are being tacked on, roadways are being widened and the character of the community is being lost (Albatross St in Woods Hole). In some cases, the community doesn't really consider what could have been and they are thrilled to have a sidewalk, even if it pushes cyclists into the road ... from the curb ... and dangles pedestrians precariously near the traffic. So, we look forward to presenting the standards to our Selectmen, asking them to adopt them for Falmouth. If there's anything we can do to help in this matter, please let me know.

Thanks for your consideration in these matters.

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****
* Janet Fredericks (jfredericks@whoi.edu) *
* Woods Hole Oceanographic Institution *
* 508-289-2573 *
****

Subject: Sagamore rotary
Date: Tue, 30 Nov 1999 10:57:59 -0500
From: "Charlotte Stiefel" <bchdust@cape.com>
To: <trans@capecodcommission.org>

I was glad to see in last week's Reporter that you are rethinking your preliminary decision to oppose changes to the Sagamore rotary. There are many Cape residents (myself included) who need changes there in order for us to be "able to move around once we're here". I really don't think an improved rotary would draw more cars from Boston as much as it would enable those of us who live or work on the upper Cape to drive around. As it is now, I almost never leave my house on Sat am or Sun p.m. in the summer (thus missing many events &, therefore, not supporting these efforts with my money). If convenient, I would be happy to talk with you about my ideas. In my work, I drive all over the Cape & have good knowledge of the worst places and the Sagamore Bridge is definitely in the top 5!

Charlotte Stiefel; Barnstable County Dept. of Health
& the Environment; Box 427; Barnstable MA 02630
508-375-6620 fax: 508-362-2603

Subject: Written comments re trans. plan.
Date: Thu, 02 Dec 1999 11:23:17 -0500
From: ghampson@whoi.edu (George R. Hampson)
To: trans@cape.whoi.edu, trans@capecodcommission.org, ghampson@whoi.edu

Dear Cape Cod Commission:

Here are a few bullets I wish to add to my oral testimony which I gave Wednesday at the Gus Canty Rec.Center in Falmouth.

1. The Cape Cod bridges are old and in need of constant repair. We should have some plan in place to replace them if necessary. To repair a little each year is important to do but the bottom line might come to pass that we might need to have one or both rebuilt. I know this is a awesome thought but should not be ignored. Please remember, I do not advocate having a third bridge or tunnel built. This does not solve our traffic problem in any way. What I an saying that what we have now is unsafe and should be updated. Most important.

2. Post a safe speed limit on the bridge crossing! We don't have one now. Imagine drivers going 55-65 over the bridges one way and on coming traffic doing about the same. This is real bad sinario. This is nuts!!!!

3.Why don't we employ State traffic police at the Sagamore and Bourne rotary when we know it's going to be bad rotary weekend? If we don't we really should.

4. My last point- EDUCATION and it might sound corney, but it's really effective. Encourage people to allow divers to pass out and into traffic lanes. In Falmouth almost everyone does this and it really makes one feel good about oneself. It's a wonderful habit which can really grow by itself. Advertising this good will gesture in the newspapers as our Cape Cod Answer to" road rage". Road rage can really kill a society, but allowing people in or out of a traffic lanes makes you feel good.

Hope this helps, and you are doing a great job.

George R. Hampson
158 Old Main Road
North Falmouth, MA 02556
ex Falmouth Planning Board Member

United Insurance Agency, Inc.
199 Main Street, P.O. Box 1013
Buzzards Bay, Massachusetts 02532-1013
(508) 759-6595 Fax # 508 759 3822

Cape Cod Commission, Transportation Committee
P.O. Box 226
Barnstable, MA. 02630-0226

Att: Kenneth Brock, Chairman
Re: Cape Cod Regional Transportation Plan
December 7, 1999

Dear Mr. Brock:

This letter is to request that the Committee pay attention to safety issues when working up a transportation plan. Every aspect of the plan should consider safety. With this morning's death being, I believe, the 4th in as many weeks, the need is there. In my earlier life I was an accident investigator, primarily in auto accidents. I worked at lengths, over a 10 year plus period, with one of the pioneers in automobile accident reconstruction. He had a multi-disciplined team and believed that each death was entitled to a comprehensive investigation so as to lead to improvements. The airline industry does this best of all on a routine basis. In any event, it is my experience that most accident have multiple causes or contributions. One factor is highway design. The costs of increased safety can be high. How you effect those decisions is your business but it would be a shame if decisions were made by default.

My request is that you identify safety concerns in each and every aspect of the plan.

Thank you for your consideration.

Sincerely,

David Lee Valdina, esq.

Subject: [Fwd: [Fwd: Mail System Error - Returned Mail]]
Date: Wed, 15 Dec 1999 14:07:39 -0300
From: Cape Cod Commission - Front Desk <frontdesk@capecodcommission.org>
Organization: Cape Cod Commission
To: Transportation Program Office <trans@capecodcommission.org>

Subject: [Fwd: Mail System Error - Returned Mail]
Date: Wed, 15 Dec 1999 09:25:49 -0500
From: ghampson@whoi.edu (George R. Hampson)
To: frontdesk@capecodcommission.org

Subject: Mail System Error - Returned Mail
Date: Fri, 3 Dec 1999 12:16:06 -0500
From: Mail Administrator <postmaster@whoi.edu>
To: ghampson@whoi.edu

This Message was undeliverable due to the following reason:

Your message was not delivered because the destination computer was not reachable within the allowed queue period. The amount of time a message is queued before it is returned depends on local configuration parameters.

Most likely there is a network problem that prevented delivery, but it is also possible that the computer is turned off, or does not have a mail system running right now.

Your message was not delivered within 1 days.
Host cape.whoi.edu is not responding.

The following recipients did not receive your message:

<trans@cape.whoi.edu>

Please reply to postmaster@whoi.edu
if you feel this message to be in error.

Subject: Written comments re trans. plan.
Date: Thu, 02 Dec 1999 11:23:17 -0500
From: ghampson@whoi.edu (George R. Hampson)
To: trans@cape, trans@capecodcommission.org, ghampson@whoi.edu

Dear Cape Cod Commission:

Here are a few bullets I wish to add to my oral testimony which I gave Wednesday at the Gus Canty Rec.Center in Falmouth.

1. The Cape Cod bridges are old and in need of constant repair. We should have some plan in place to replace them if necessary. To repair a little each year is important to do but the bottom line might come to pass that we might need to have one or both rebuilt. I know this is a awesome thought but should not be ignored. Please remember, I do not advocate having a third bridge or tunnel built. This does not solve our traffic problem in any way. What I an saying that what we have now is unsafe and should be updated. Most important.

2. Post a safe speed limit on the bridge crossing! We don't have one

DEPARTMENT OF BIOLOGY - REDFIELD LABORATORY
WOODS HOLE, MA 02543-1049 U.S.A.

FAX # 508-457-2134

TO: Cape Cod Commission

AFFILIATION:

FAX NO.:

FROM: George R Hampson DATE: 12/21/99

NUMBER OF PAGES BEING SENT (INCLUDING COVER SHEET): _____

MESSAGE:

Merry Christmas —.

Something to maybe help our cape cod traffic

For the Cape cod comm. TRAFFIC committee.

George R. Hampson

508-289-2655.

December 21, 1999

Cape Cod Commission:
Barnstable, Massachusetts
Att. Traffic Review Committee.

Dear Cape Cod Commission;

Tried to send this via E Mail to no avail. Used your both addresses. I have worked on the message so long that I felt it necessary to rewrite it and pass it along.

Here are a few bullets that I wish to add to my oral testimony on December 1, 1999 at the Falmouth Gus Canty Rec. center.
1. Our Cape bridges, our main connecting links are as old as I and we both are in need of constant repair!. It'simportant that some organization **should be planning for their replacement**. To repair a little each year is important, but it doesn't look at the big picture- an eventual need for replacement. They were built for the 40's and 50's traffic. What we have now is stretching their limits. This is not only my opinion ! The engineers say the same. Not that I advocate a third bridge. Never! This does not solve any traffic problem on the cape. But we need to address the replacement issue.

The traffic which passes across every day is insane and unsafe for these bridges, mainly because drivers go much too fast over them. Consider, as you have all witnessed , one lane going 55-60 mph one way and the adjacent traffic, within mirror touching distance, going the same rate of speed in the opposite direction. This is what is crazy and completely unsafe. No speed limits posted anywhere and nobody would pay attention I suppose. However: **post a safe speed limit on the bridges for what it's worth.**

2. During the summer, why not **use State Police to better control traffic flow at the rotaries**, to be use especially during a potentially predictable bad traffic weekend. Employ traffic police at the rotaries.

3. My last point, a bit corny but it works in Falmouth and other towns on the Cape. In heavy slow traffic we allow people to enter our traffic lane from a side street or business. To do otherwise, poor drivers would never get out. In Falmouth almost everyone does this and it's contagious and it makes you feel good! To put it another way "it's our answer to *Road Rage*. "*Road Rage*" can kill a society, allowing people to pass into your traffic lane is the cure for *Road Rage* on Cape Cod . Why don't we advertise this fact that on Cape Cod we try and be courteous in driving and to be patient with other drivers and to allow them passage.

Here's a challenge for your committee for 2000. Take my point of building this road courtesy issue on Cape Cod and see if it works! We advertise "junk" and just about everything else. Why not his? A act of kindness! Corny huh? TRY IT!

Happy Holiday Season and a safe trip on our highways.

George R. Hampson
158 Old Main Road
North Falmouth, MA. 02556

Subject: [Fwd: Route 132 / Phinney's Lane]
Date: Thu, 01 Jun 2000 14:03:34 +0000
From: Cape Cod Commission - Front Desk <frontdesk@capecodcommission.org>
Organization: Cape Cod Commission
To: Transportation Program Office <trans@capecodcommission.org>

Subject: Route 132 / Phinney's Lane
Date: Thu, 1 Jun 2000 10:22:55 -0400
From: Patricia_Orellana@infinium.com
To: cccom@capecodcommission.org

To Whom it may concern,

I commute to Hyannis daily for work. This year a new road (Hadaway) was created off Independence Road. This was a great idea. The people working in the Industrial Park are finding with this road a problem when returning to Route 132 and Route 6 after work hours. You have two choices, one to make a left turn on Phinney's Lane (if you can) or go straight through to Route 132 on Hadaway (Old Rt. 132) which has a stop sign. The best and safest is to make a left turn on Phinney's Lane, but you can never do so due to back up of traffic at the light. Cars traveling down Phinney's lane to Rt. 132 block the intersection. The most dangerous route is to go straight to Route 132 on Hadaway (Old 132) and take your chance on pulling out without getting into a major accident. Cars just do not let you out on this road! This is going to get worse as the tourist season is in full swing.

Both situations can be easily be remedied by extending the light on the corner of Phinney's and Route 132 to allow more cars and putting a light at the end of Hadaway Road (Old 132) to allow cars to safely enter Route 132. It would also be great to put in a right turn lane at this light. This would ease the conjestion at both lights (Phinney's/Rt. 132 and Hadaway/Phinney's).

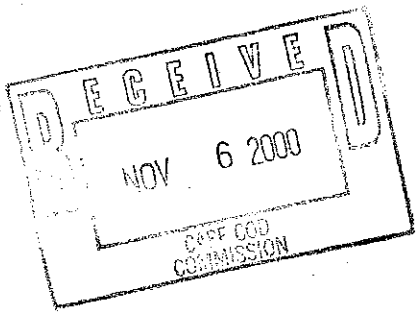
Is there anyone looking into this dangerous situation. Please advise.

Thank you,

Pat Orellana

Plymouth & Brockton STREET RAILWAY CO.

8 Industrial Park Road, Plymouth, Mass. 02360-4828
(508) 746-4795 (617) 773-9403 Fax (508) 746-0584



Robert Deane, Chair
Cape Cod Commission Transportation Committee
Cape Cod Commission
P.O. Box 226
Barnstable, MA 02630

Oct. 27, 2000

Dear Mr. Deane:

As your preparing the latest version of the Regional Transportation Plan, I'd like you to consider the need for an expanded Park and Ride lot in West Barnstable. In 1998, the lot was renovated and an additional 80 parking spaces were created. By the time of the project's completion, the demand for parking had already exceeded the lot's capacity. Presently on any given day, 25-50 cars are parked in non-designated locations.

An improved public transportation system is a high priority of Cape Cod residents. As traffic increases, more people will be looking for alternatives to driving. We need to provide places for people to leave their cars and access the system for travel both on and off Cape Cod.

The West Barnstable lot has many users besides Plymouth & Brockton Street Railway Company that include other bus companies, van pools, limousine companies and human service agencies. This parking location is obviously successful so future additional parking should be located in close proximity, if possible.

Thank you for your consideration of this issue from both P & B and users of public transportation.

Sincerely,

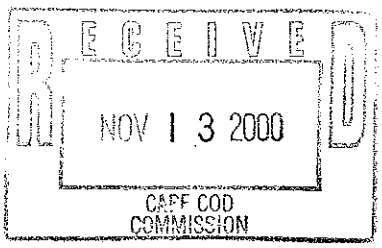
Helen C Anzuoni

Helen C. Anzuoni
Cape Cod District Manager

70 Main Street
Buzzards Bay, MA 02532
www.capecodcanalchamber.org

Cape Cod Canal Region
Chamber of Commerce

Tel (508) 759-6000
Fax (508) 759-6965
canalreg@capecod.net



November 8, 2000

Mr. Robert Deane, Chair
Transportation Committee
Cape Cod Commission
3225 Main St.,
Barnstable, Ma 02630

Dear Mr. Chair:

May we request that the enclosed materials be made part of the record of the public hearings on developing a regional transportation plan for Cape Cod?

Essentially the attachments suggest improvements that can and should be made at the Bourne Bridge/Rotary to address vehicular traffic congestion and orderly flow. These improvements can provide much needed relief and we urge the Commission to consider them as part of any short-term recommendations it might offer.

The proposals were developed as part of the FEIS submitted by the developer of CanalSide Commons to both the Commission and the Massachusetts Environmental Protection Agency and carries the strong endorsement of The Bourne Committee of the Cape Cod Canal Region Chamber of Commerce.

For The Bourne Committee

Tom Moccia

For Immediate Release

Contact:
Andy Paven
GPC/O'Neill
(617) 646-1021

CANALSIDE COMMONS ANNOUNCES FINAL TRAFFIC IMPROVEMENT PLAN FOR BOURNE ROTARY

BOURNE, MA – October 31, 2000– Len Cubellis, architect and developer of the proposed CanalSide Commons, today announced his final traffic improvement plan which will be included in CanalSide Commons final FEIR filing. The plan will eliminate the existing bottleneck at the Bourne rotary and significantly improve this gateway to Cape Cod.

The new road system will remove over 1,500 vehicles per hour off the rotary during peak seasonal hours. This is a 60% reduction from the 2,500 cars that now pass though the rotary during peak seasonal hours. A new loop road will redirect Bourne Bridge traffic heading to Route 6, on a new road around the State Police barracks and onto Sandwich Road, completely avoiding the need to travel around the rotary.

In addition, traffic on Route 28 North from Falmouth heading to Sagamore will utilize a new bypass road connecting Route 28 North to Sandwich Road, thereby eliminating the need to enter the rotary. Traffic coming from the Mid-Cape and Sagamore, which is heading to Falmouth or Buzzards Bay, will continue as it always has. Falmouth bound travelers will see great improvements with this new roadway system since North-South traffic flow through the rotary will be essentially uninterrupted.

In addition to the rotary improvements there will be additional benefits such as redirecting the Upper Cape Cod Technical School access and adding left hand turning lanes at the Gallo Ice Arena, Schooner Pass Condominiums and Port O'Call Residences.

"Since the inception of CanalSide, I have been aware that I must make improvements to traffic in Bourne," said Len Cubellis, architect and developer of CanalSide Commons. "By utilizing this proposed traffic plan, Bourne rotary traffic conditions will be improved on a year round basis."

CanalSide Commons is a residential, business, retail and recreational community that is modeled in the style of a Cape Cod Village. Located above the rotary at Route 28 and Sandwich Road in Bourne, CanalSide Commons is designed to be environmentally sensitive by preserving open space and employing smart growth anti-sprawl principles.

###

The site plan originally proposed for CanalSide Commons under the Draft Environmental Impact Report (DIER) is attached to enable reviewers to consider the extent to which the development has been downsized and modified through the MEPA/CCC review process. The current site plan for the Variant of Alternative 2A (Figure 1-1) is substantially more consistent with traditional patterns of development in the region and more appropriately respects the natural contours of the property. The current site plan reflects the proponent's responsiveness to comments throughout the public review process for CanalSide Commons and represents a viable, mid-build development program for the property.

Modifications to Transportation Scheme B

In addition to modifications to the site plan for CanalSide Commons described above, changes have also been incorporated into the roadway access plan introduced in the SDEIR as 'Scheme B'. These changes are in response to technical comments from MassHighway and the CCC. The currently proposed roadway network is attached.

Similar to the Scheme B design from the SDEIR/DRI, Scheme B Modified provides for the construction of an access to and from Route 28 northbound that will permit right turns in and out only. This access point would connect to a Mass State Highway bypass road extending across the front of the project site and continuing northeasterly until intersecting Sandwich Road east of the existing Upper Cape Regional Technical School driveway. Only access to Sandwich Road eastbound will be provided. The bypass road would be a two- -lane undivided highway, with three-lane segments at intersections.

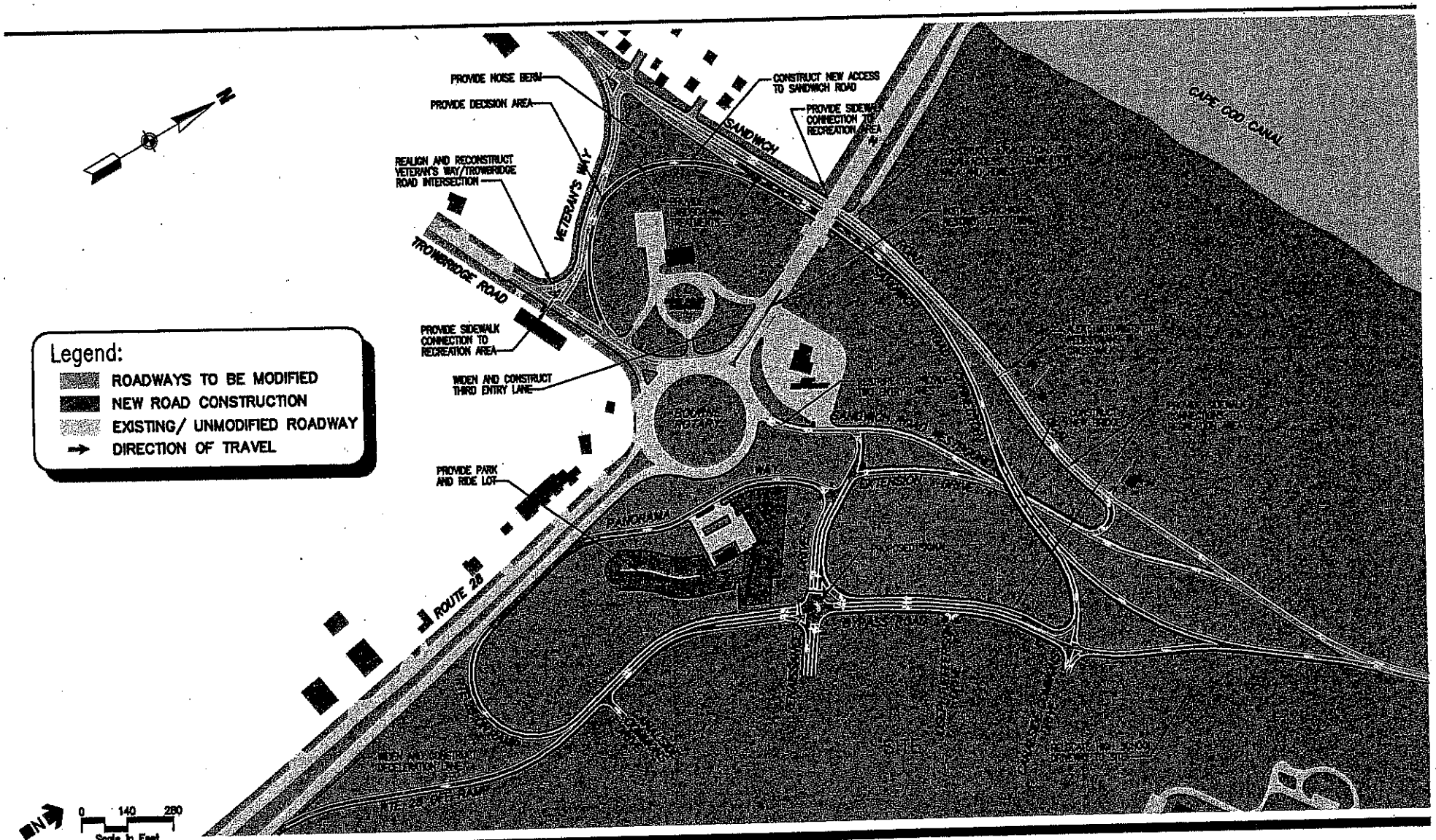
On the west side of the rotary, the Bourne Rotary loop is retained. Where the previous design merged the significant volume from the Bourne Bridge southbound to Sandwich Road eastbound movement (up to 1,000 vph) onto the existing Sandwich Road section, the new design incorporates a relocation of Sandwich Road for two-way local traffic. This will be a separate two-way roadway, intended to provide safe access to the residences on Sandwich Road as well as to the Bourne Recreation Area, without impeding the thoroughfare of the loop ramp traffic. Traffic flows on the two roads will be separated with a raised median which will contain a planted vegetated barrier for noise reduction, as well as aesthetic considerations. The westbound traffic movement will be similar to current conditions, with a connection to Sandwich Road east of the site and a merge back to the existing section, west of the Veterans' Way and Freeman Street intersection. The eastbound traffic movement will be permitted as far east as the last private driveway on Sandwich Road; the road will then provide a connection to Sandwich Road Extension, which as with the prior design, will be modified to permit westbound travel only, from the bypass

road junction point to the entrance to the Bourne Rotary. A site driveway will intersect with Sandwich Road Extension, near the entrance to the Rotary, for existing movements. A separate roadway ramp splitting off from Sandwich Road Extension will be constructed to provide access from Sandwich Road westbound into the site.

Operationally, the most significant revisions to the design are the removal of the means to enter the site from the rotary, and the elimination of signalized control at two intersections providing access or egress to the site. In fact, traffic destined to enter the site is now all but completely removed from the rotary, only making contact with the rotary segment between the Bourne Bridge and Trowbridge road approaches. Due to the reconfiguration of Sandwich Road Extension as a one-way entrance into the rotary, substantial reductions in delay, and corresponding improvements in level of service at the rotary are realized.

The modifications that have been incorporated into the development program for Alternative 2A and the associated modifications to roadway Scheme B have specifically been developed to ensure that the necessary regional transportation improvements are consistent with the goals and Minimum Performance Standards of the RPP.

The scale of the current development proposal allows for the construction of much-needed roadway improvements at the Bourne Rotary, reducing congestion and improving vehicle flow at one of the two entry points to the Cape. In addition, CanalSide Commons facilitates the establishment of multi-modal facilities including a shuttle bus program, connections to existing bicycle paths, and a vehicle park-and-ride lot. The land uses proposed under the Variant of Alternative 2A are designed to complement each other, with residential, retail and office development clustered in close proximity to decrease dependence on private automobiles, thereby reducing pollution and promoting energy efficiency. In addition, the office uses are intended to be of the high-technology office incubators, which typically permit the use of transportation substitutes such as telecommunications. The multi-use nature of the development encourages visits of longer duration for guests, employees, and retail patrons, with the ability to capture vehicle trips from within the development, as well as from the existing traffic stream. This further reduces the dependence on passenger vehicles, and minimizes the traffic impact of the project.



Vanasse & Associates, Inc.
Transportation Engineers & Planners

Conceptual Improvement Plan
Scheme B -- Modified

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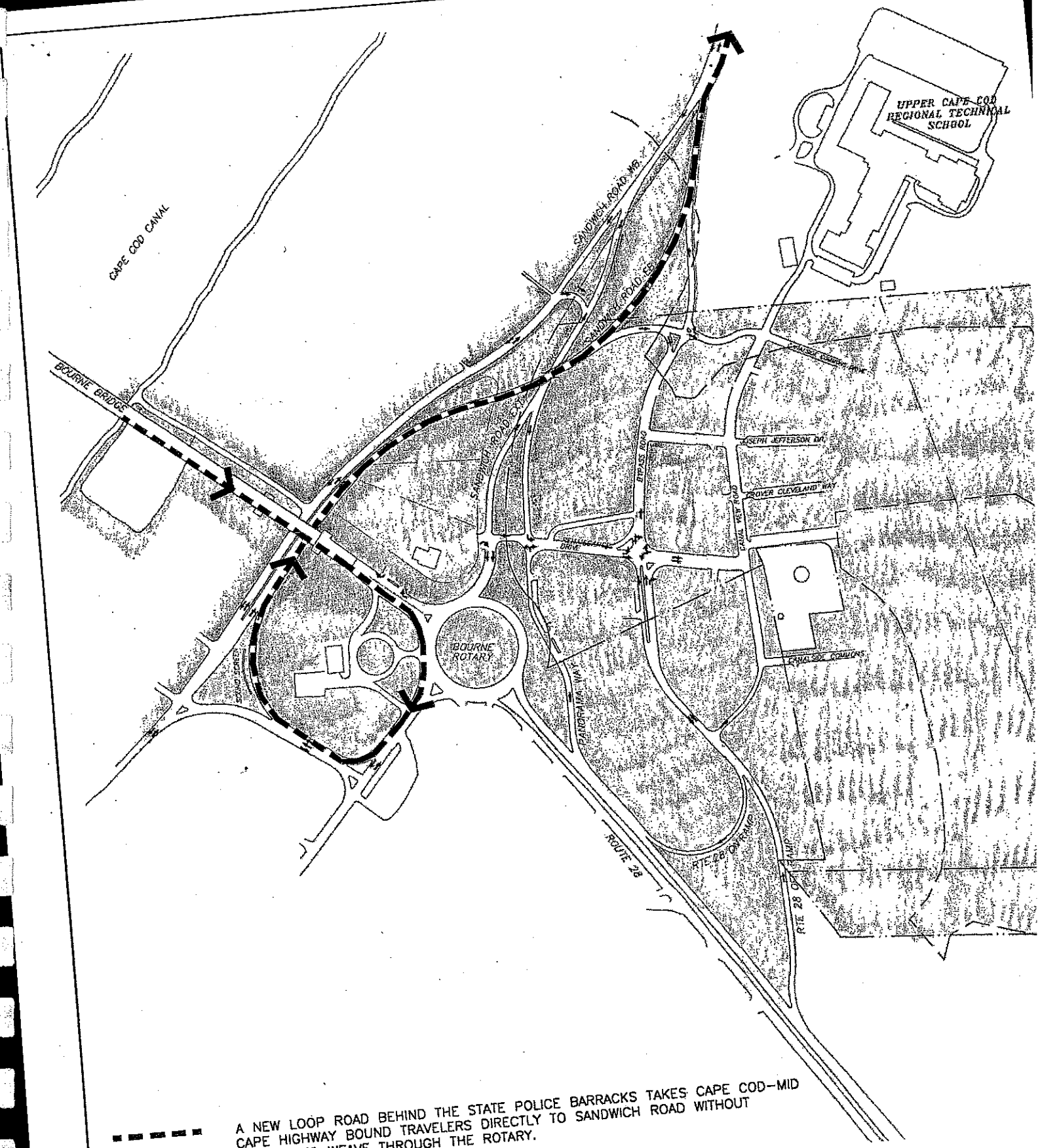
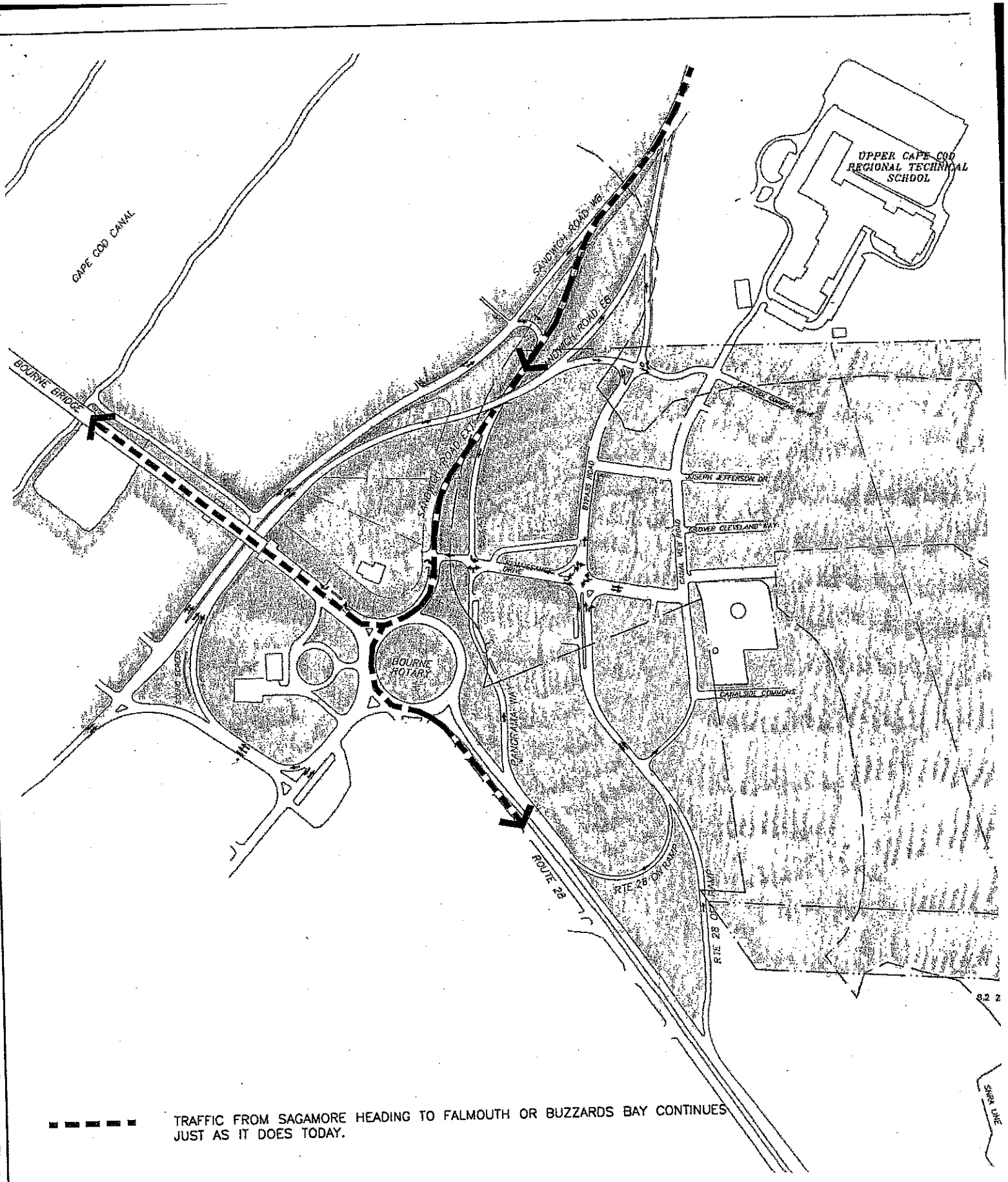


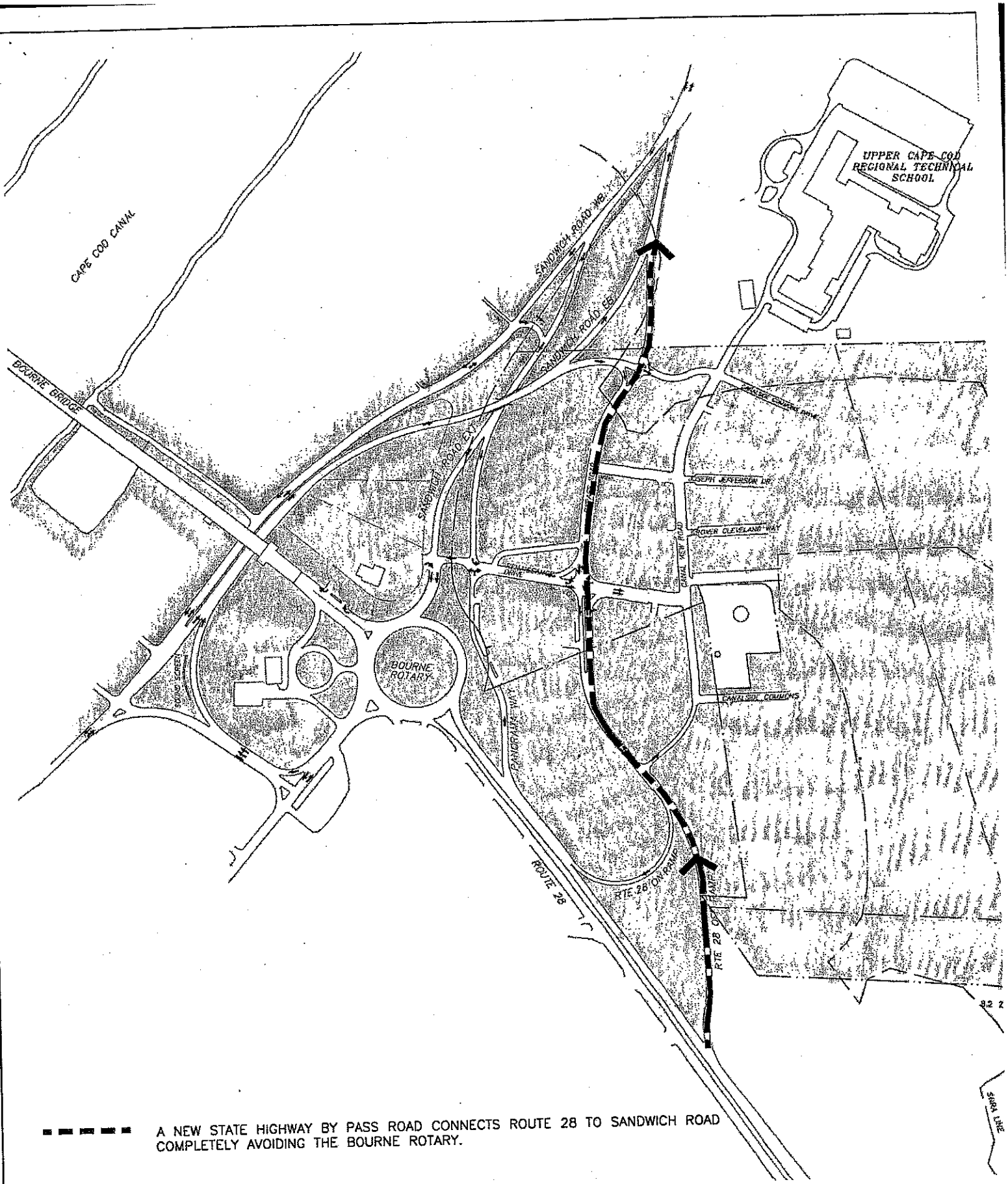
A NEW LOOP ROAD BEHIND THE STATE POLICE BARRACKS TAKES CAPE COD-MID CAPE HIGHWAY BOUND TRAVELERS DIRECTLY TO SANDWICH ROAD WITHOUT NEEDING TO WEAVE THROUGH THE ROTARY.

1-5A	Cubellis Associates Inc. 289 Devonshire Street 2040 Chancellor Street Boston, MA 02108 Philadelphia, PA 19103 Tel: 617-338-0009 Tel: 215-972-8031	TITLE ROADWAY IMPROVEMENT	BOURNE Canal comm
97155	DATE 10/31/00 DRAWN BY DC	SCALE 1"=400'	



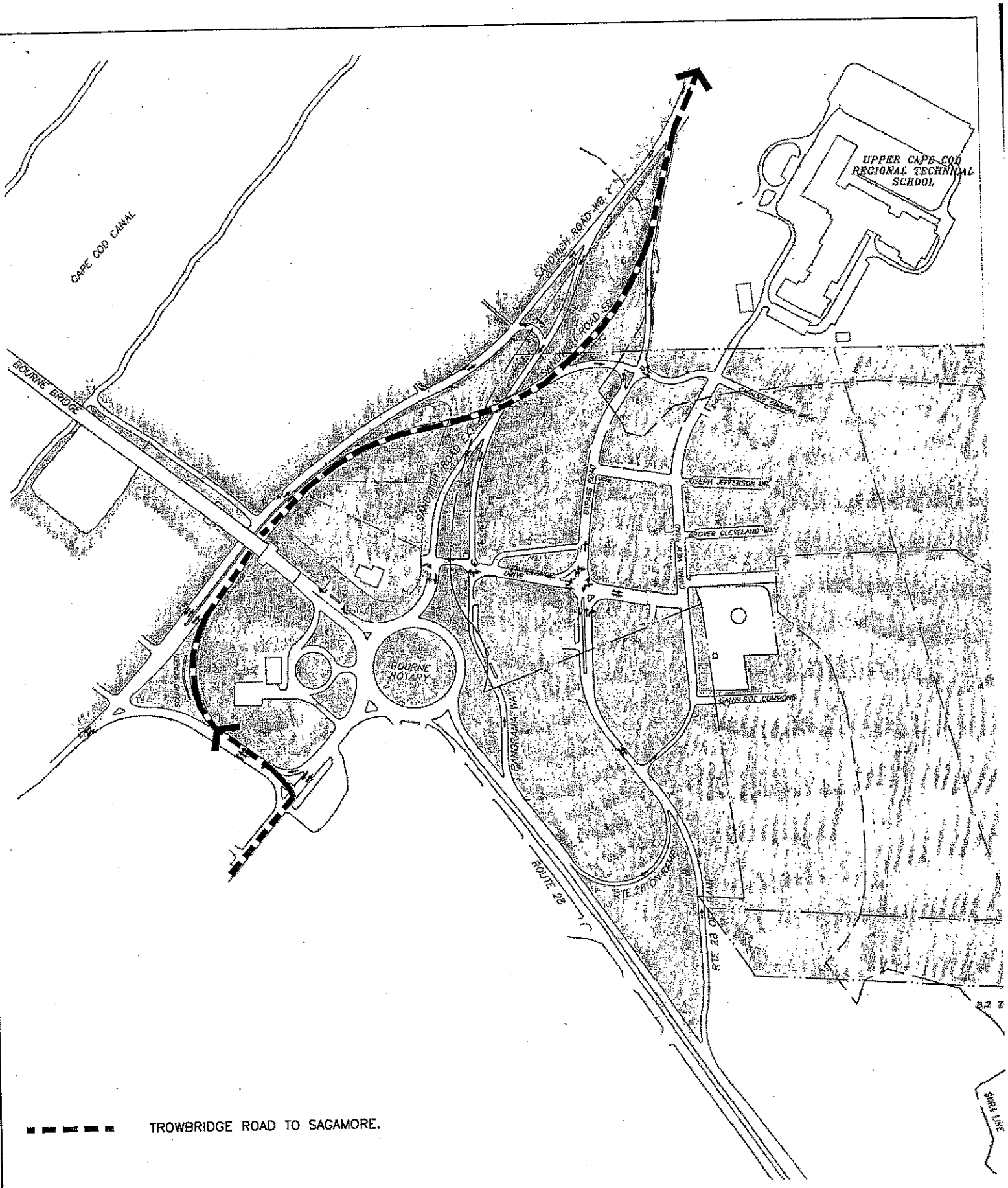
TRAFFIC FROM SAGAMORE HEADING TO FALMOUTH OR BUZZARDS BAY CONTINUES JUST AS IT DOES TODAY.

1-5B	Cubellis Associates Inc. 289 Devonshire Street 2040 Chancellor Street Boston, MA 02115 Philadelphia, PA 19103 Tel: 617-338-0009 Tel: 215-972-8031	TITLE ROADWAY IMPROVEMENT	CanalSide commons BOURNE
97155	DATE 10/31/00 / DRAWN BY DC	SCALE 1"=400'	



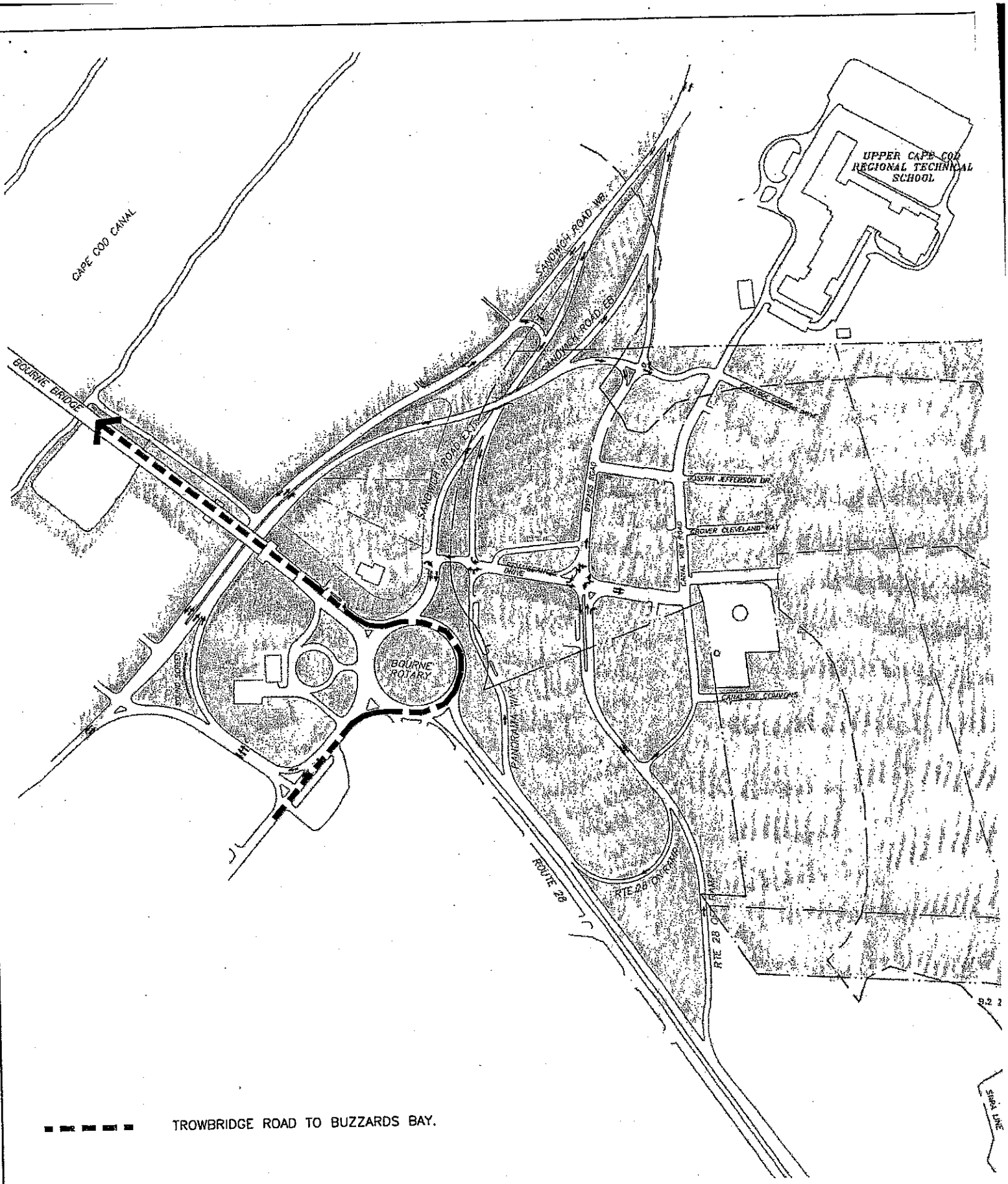
A NEW STATE HIGHWAY BY PASS ROAD CONNECTS ROUTE 28 TO SANDWICH ROAD COMPLETELY AVOIDING THE BOURNE ROTARY.

1-5C	Cubellis Associates Inc. 289 Devonshire Street 2040 Chancellor Street Boston, MA 02110 Philadelphia, PA 19103 Tel: 617-338-0009 Tel: 215-972-8031	TITLE ROADWAY IMPROVEMENT	CanalSide commons BOURNE
97155	DATE 10/31/00 / DRAWN BY DC	SCALE 1"=400'	



TROWBRIDGE ROAD TO SAGAMORE.

1-5D	Cubellis Associates Inc. 289 Devonshire Street 2960 Chancellor Street Boston, MA 02108 Philadelphia, PA 19103 Tel: 617-338-0009 Tel: 215-972-8031	TITLE ROADWAY IMPROVEMENT	CanalSide commons BOURNE
97155	DATE 10/31/00 / DRAWN BY DC	SCALE 1"=400'	



1-5E	Cubellis Associates Inc. 289 Devonshire Street 2040 Chancellor Street Boston, MA 02116 Philadelphia, PA 19103 Tel: 617-338-0009 Tel: 215-972-8031		TITLE ROADWAY IMPROVEMENT	CanalSide commons BOURNE
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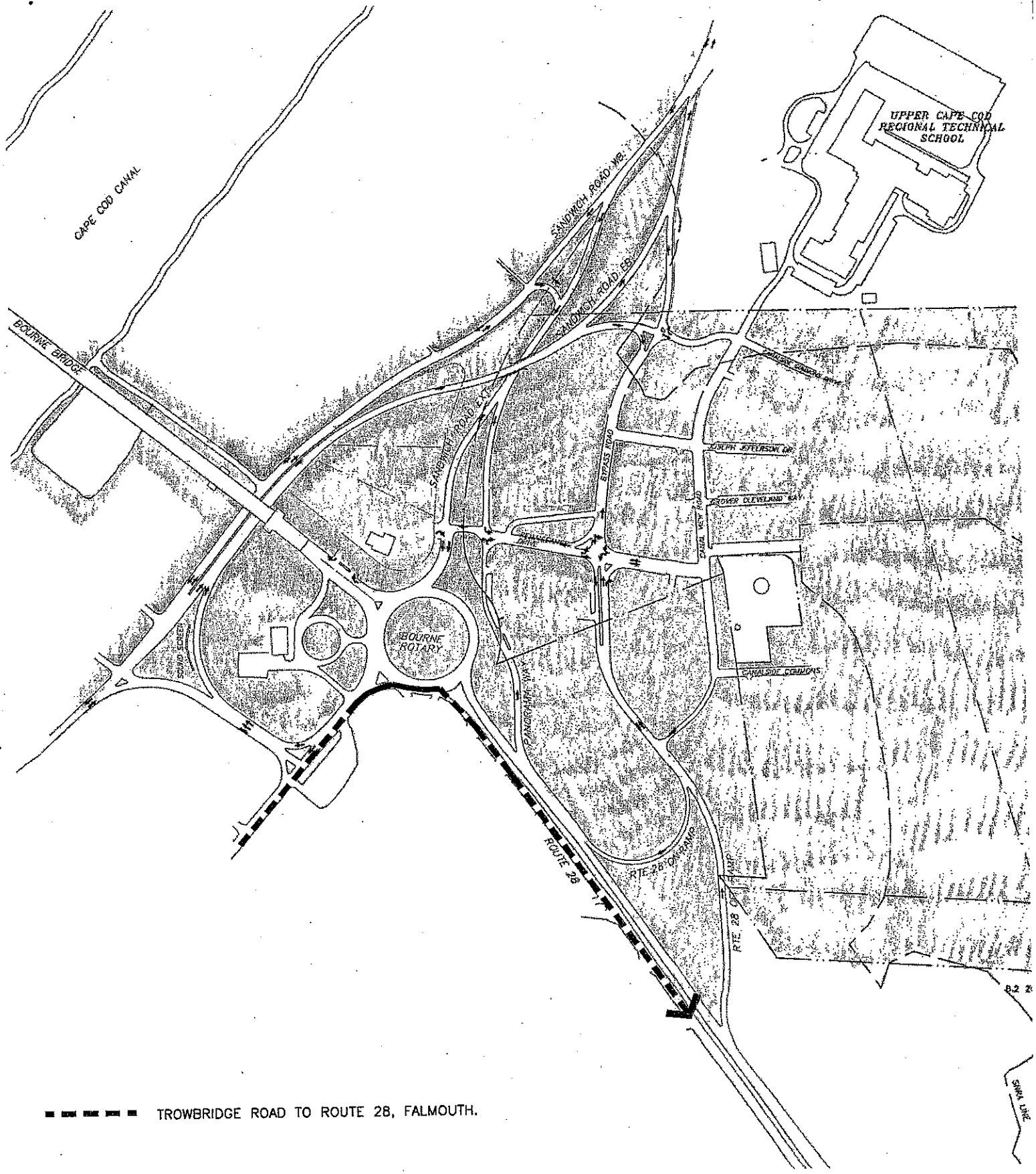

1-5F	Cubellis Associates Inc. 289 Devonshire Street 2010 Chancellor Street Boston, MA 02115 Philadelphia, PA 19103 Tel: 617-338-0009 Tel: 215-972-8031	TITLE ROADWAY IMPROVEMENT	CanalSide commons BOURNE
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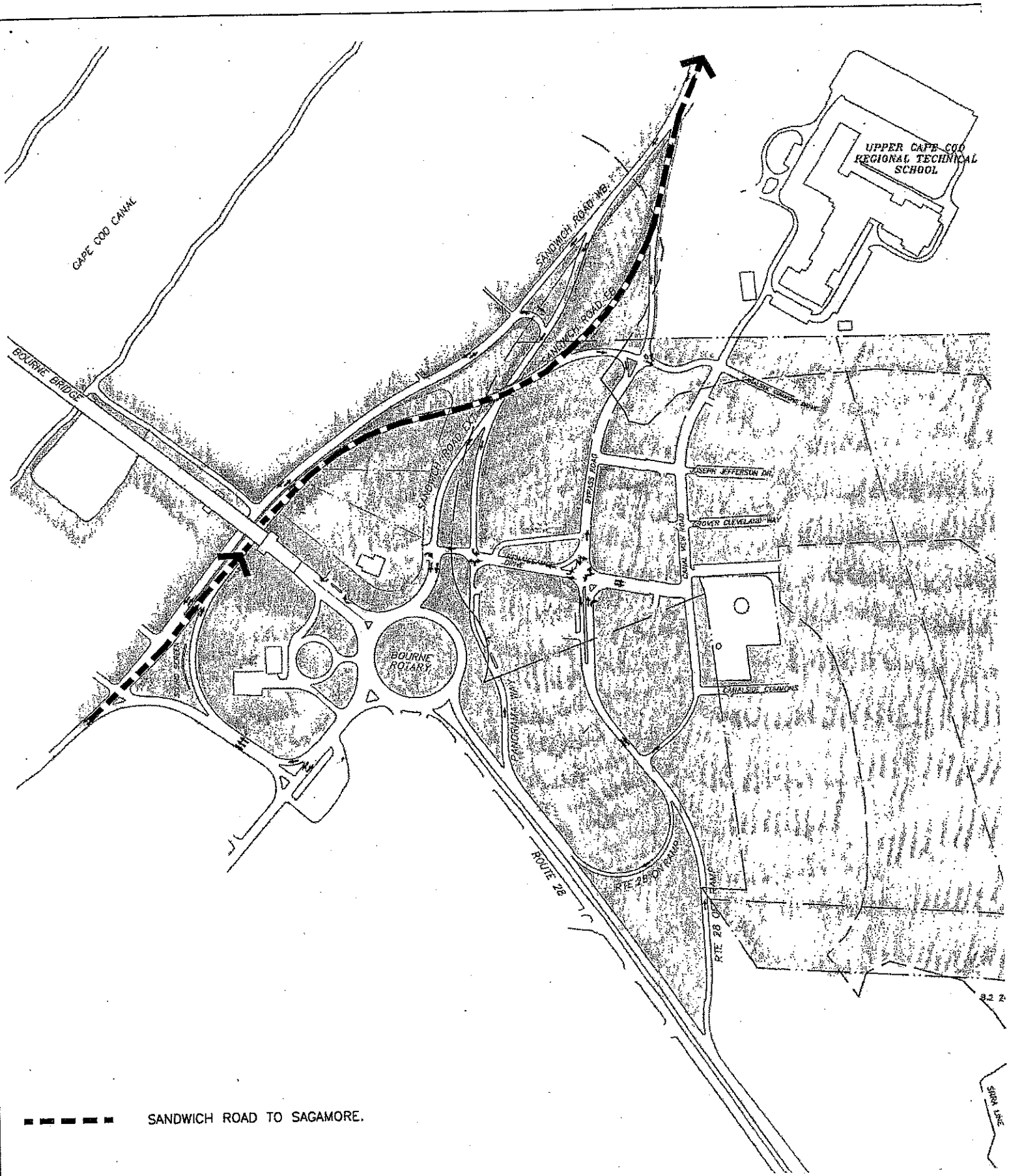


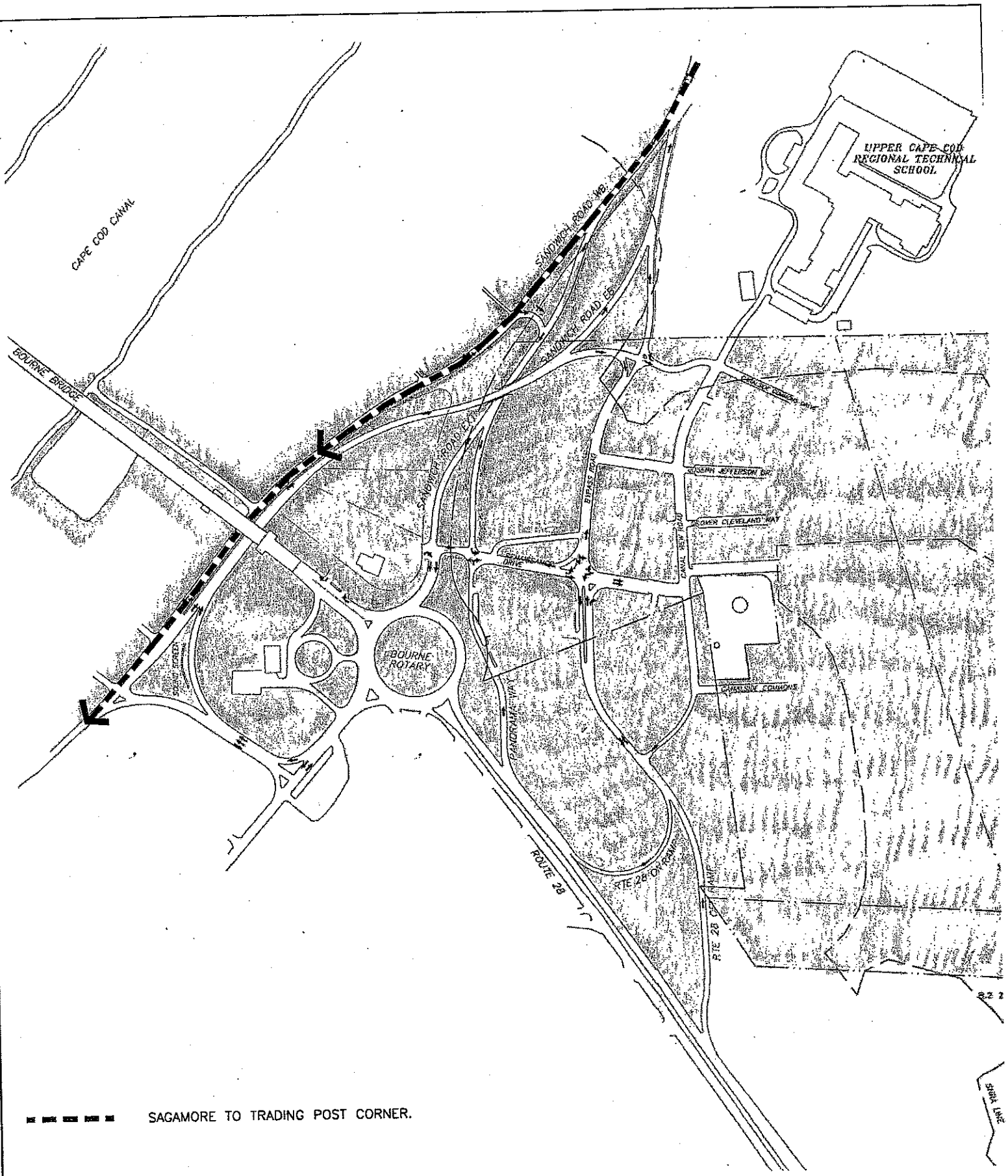
SANDWICH ROAD TO SAGAMORE.

1-5G	Cubellis Associates Inc. 289 Devonshire Street Boston, MA 02109 Tel: 617-338-0009 2600 Chancellor Street Philadelphia, PA 19103 Tel: 215-972-8031		TITLE ROADWAY IMPROVEMENT	CanalSide commons BOURNE
97155	DATE 10/31/00	DRAWN BY DC	SCALE 1"=400'	

SANDWICH ROAD TO BUZZARDS BAY.

1-5H	Cubellis Associates Inc. 289 Devonshire St. Boston, MA 02110 Tel: 617-338-0009 2010 Chancellor Street Philadelphia, PA 19103 Tel: 215-972-8031	TITLE ROADWAY IMPROVEMENT	BOURNE Canals comm
97155	DATE 10/31/00 DRAWN BY DC	SCALE 1"=400'	

1-51	Cubellis Associates Inc. 289 Devonshire Street 2600 Chancellor Street Boston, MA 02116 Philadelphia, PA 19103 Tel: 617-338-0009 Tel: 215-972-8031		TITLE ROADWAY IMPROVEMENT	CanalSide commons BOURNE
97155	DATE 10/31/00	DRAWN BY DC	SCALE 1"=400'	



1-5J	Cubellis Associates Inc. 289 Devonshire Street 2040 Chancellor Street Boston, MA 02108 Philadelphia, PA 19103 Tel: 617-338-0009 Tel: 215-972-8031		TITLE ROADWAY IMPROVEMENT	CanalSide commons BOURNE
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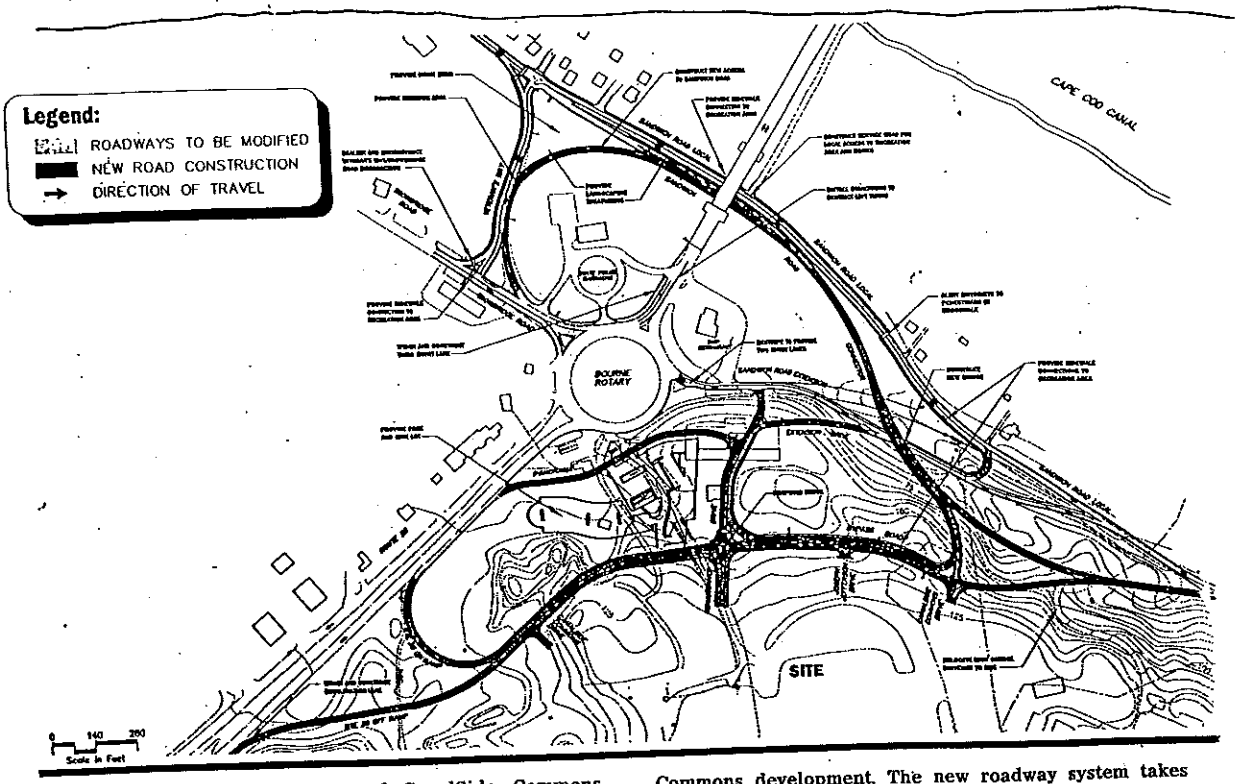

Len Cubellis, the developer of CanalSide Commons, unveiled his $7 million traffic plan for the CanalSide Commons development. The new roadway system takes traffic out of the Bourne Rotary and reroutes it.

CanalSide Developer Unveils Traffic Plan

By JOHN A. NICHOLSON

CanalSide Commons' developer Len Cubellis and his team of traffic consultants unveiled the project's new $7 million traffic design for the proposed project.

CanalSide Commons is a mixed-use development plannned for land off the Bourne Rotary. Mr. Cubellis also announced that he has filed his Final Environmental Impact Report with the Cape Cod Commission and the state Executive Office of Environmental Affairs.

"The majority of the filing deals specifically with traffic issues," Mr. Cubellis said. "The hold up for traffic is the rotary, not the bridge, and the backup experienced is caused when traffic from all directions weaves together. What we have is a solution to the Bourne Rotary problems."

According to Bob Vanasse of Vanasse & Associates, Inc., the success of the design lies in the fact that the new roadway system removes traffic from the rotary and reroutes it elsewhere.

"Finally we have a reorganization of the rotary that places people where they need to go," Mr. Vanasse said. "We take the cars out of the rotary that do not need to be in the rotary."

Mr. Vanasse said CanalSide Commons takes advantage of the bridge traffic rather than creating more traffic. People from Plymouth, for example, will know not to come on a Friday night to shop at CanalSide. Traffic heading elsewhere on the Cape will stop at CanalSide. That traffic will already be there. "The logic of this design is compelling," he said.

According to the plans presented Tuesday afternoon at the Mezza Luna Restaurant in Buzzards Bay, a new loop road behind the State Police barracks will take Cape Cod and Mid-Cape Highway bound travelers directly to Sandwich Road without needing to weave through the rotary.

Traffic from Sagamore heading to Falmouth or Buzzards Bay will travel just as it does today and a new state highway bypass road will connect Route 28 to Sandwich Road and will completely avoid the Bourne Rotary.

"The new traffic design minimizes and solves the basic traffic problems. We took the approach of solving the problem by using the existing road structure. We fixed the rotary by subtraction. The worst area is in front of the former Texaco station. All roads meet there with an average of 2,500 to 2,700 vehicles passing through hourly," Mr. Vanasse said.

The new traffic design will keep CanalSide Commons' traffic out of the rotary, keep bridge traffic headed to the Mid-Cape Highway out of the rotary and take traffic coming from Falmouth and heading to Sagamore and the Mid-Cape out of the rotary, Mr. Vanasse said.

Traffic heading to Sagamore would come over the bridge and loop behind the State Police barracks and proceed down Sandwich Road. Traffic from Sagamore heading to Shore and County roads would continue as it does now. New signage would segregate the traffic and direct it to the proper roadway.

Falmouth to Sagamore traffic would avoid the rotary completely by taking a new bypass roadway from Route 28, through CanalSide Commons and onto Sandwich Road.

Traffic heading from Falmouth to Route 25/Route 495 would proceed over the bridge as it does now.

CanalSide-bound traffic coming over the bridge would loop behind the State Police barracks and follow its own roadway to CanalSide. CanalSide-bound traffic from South Sagamore would also access the development on its own roadway.

Local traffic would use the roads as it does now, Mr. Vanasse said. "There would be some basic changes, but the movement of traffic would be the same," Mr. Vanasse said.

For example, traffic coming from Trowbridge Road and heading to Route 25 would travel as it does now. Traffic from the same area heading to South Sagamore would use Sandwich Road via Veterans Way or head across the rotary past the IHOP restaurant and down to Sandwich Road.

Mr. Cubellis said a hearing before the Cape Cod Commission is tentatively scheduled for November 28. Mr. Cubellis hopes to get his approvals by May 2001, which would allow him to begin construction of the bypass road off Route 28. He said work on retail areas could proceed simultaneously with the road construction and that it would be about five years before the entire project would be completed.

The Bourne Enterprise

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Managing Editor

JOHN A. NICHOLSON
Bourne Editor

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JOHN TALCOTT HOUGH
Publisher 1976 - 1992

Established as The Falmouth Local in 1886; The Enterprise in 1895; The Falmouth Enterprise, 1927. Successor to Barnstable County's first newspaper, The Nautical Intelligencer, founded in Falmouth in 1823.

Middle Ground Needed

Clearly, some sort of middle ground must be reached when it comes to discussing the CanalSide Commons development.

Since Len Cubellis filed the Supplemental Environmental Impact Report last spring, he has addressed the issues raised by the Cape Cod Commission staff report as well as those raised by state Environmental Secretary Robert Durand. The project has evolved into a workable project that benefits the community and the region.

Now comes the review and comment period.

Mr. Cubellis has filed his Final Environmental Impact Report. A hearing before the Cape Cod Commission is tentatively scheduled for November 28. The hearing will include discussion of the project's merits and its potential problems and it will be important for both sides to clearly state their points of view.

No longer should an opponent state that the project is "too big" or that it "represents too much retail." Specifics need to be discussed now that the project enters the next round of review by the state and the Cape Cod Commission. Nebulous comments like "it is bad for traffic" are of no use because the developer has shown that he is willing to change the project to meet demands when demands are specific and viable.

For example, Mr. Cubellis has added 55-and-over housing to the project in response to the town's interest and needs. The region's and Bourne's fiscal future will be bolstered with the addition of a hotel/conference center. The developer has added open space as requested by the Bourne Conservation Trust. A nearby neighborhood has been shielded from rerouted traffic as requested by the Association for the Preservation of Bourne. Retail space has been reduced as requested by the Cape Cod Commission and, finally as requested by the state, a comprehensive traffic plan has been drafted to handle automobiles heading over the bridge.

Throughout the process, Mr. Cubellis has shown a willingness and a desire to work with those who are able to present logical arguments for change. There is every reason to expect that Mr. Cubellis will continue to listen to

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'Smart Growth'

The decision of the board of selectmen to support the CanalSide Commons project is a major step forward for the community. Now it is very important for residents who support the project to attend Thursday's hearing and make their position known to the Cape Cod Commission.

The board had praise for Len Cubellis, developer of the project, and his willingness to adapt and change his proposal to match the needs of the community. The inclusion of a hotel and conference center gives CanalSide Commons an added economic vitality that the original proposal was lacking. Not only will the hotel and conference center provide visitors with a quality site near the Cape Cod Canal, it will also provide the town additional tax revenue.

Upon hearing of the board's approval, David Sampson, chairman of The Cape Cod Canal Region Chamber of Commerce, praised selectmen for their unanimous vote in endorsing the revised CanalSide Commons development. "The unanimous vote of the board of selectmen sends a clear signal that the town's top elected officials share the view of the Cape Cod Canal Region Chamber of Commerce regarding the immediate need to allow CanalSide Commons to move ahead.

"Completion of the Commons development will create economic opportunity, new jobs, additional hospitality business, much-needed affordable housing, recreation and conference facilities, will address the Bourne rotary traffic congestion, and provide additional tax revenue for Bourne.

"I encourage the regulatory community to take note that the Bourne business community is encouraged by this important vote reflecting the support of Bourne's elected leadership. Every effort must be made to expeditiously conclude reviews for this much-needed economic, recreational and environmentally-compatible development for the Upper Cape." Mr. Sampson concluded.

It is important to note that the board's vote endorses the concept of the project and the benefits it could bring. CanalSide Commons still needs the approval of the Cape Cod Commission and the state. The vote of the selectmen should send a clear message to the state and county regulators that Bourne wants this kind of development.

We join with the chamber and the board of selectmen in saying that CanalSide Commons is "smart growth" for the Town of Bourne.

J. UPMAN FILE

CAPE COD COMMISSION

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PUBLIC MEETINGS

Cape Cod 2000

Regional Transportation Plan

Preserving & Enhancing the Cape's Transportation System

Every three years the Cape Cod Commission updates the regional transportation plan for Cape Cod in cooperation with state and federal transportation agencies. We are now holding a series of meetings to obtain public comment on the update for the period 2000-2003. Please attend the meeting that is most convenient for you. For information on the 1997-2000 plan, please go to **www.gocapecod.org/rtp** or call the Cape Cod Commission at (508) 362-3828.

Monday, November 13, 2000 • 2 PM
Yarmouth Town Hall Hearing Room
1146 Route 28 • Yarmouth, Massachusetts

Wednesday, November 15, 2000 • 7 PM
Eastham Town Hall
2500 State Highway • Eastham, Massachusetts

Monday, November 20, 2000 • 7 PM
Carol Jacobson Senior Center
500 Great Neck Road North • Mashpee, Massachusetts

Subj:	**Transportation**
Date:	11/08/2000 3:12:52 PM Eastern Standard Time
From:	JamHarwich
To:	frontdesk@capecodcomission.org
CC:	JamHarwich

Dear Cape Cod Commission: 11/8/00

Ideally, I would be at your meeting this evening to deliver my remarks personally; however, simply because there is no **fixed**, public transportation available, I have had to resort to sending you my remarks via e-mail. My predicament truly highlights the crux of the matter-there is no **fixed** public transportation let alone one that is accessible.

In this millennium, in this economy, in this country especially on affluent Cape Cod, the lack of a common and expected, accessible, **fixed** public transportation system borders on insanity. How can we let this sandy arm of land beckon tourists, "wash-a-shores" , and especially senior citizens and people who are disabled and then fall down so miserably in providing means to get about?

If we had a good transportation infer-structure (an accessible, **fixed,** public transportation), than perhaps the external transportation systems (buses,ferries,trains) would be realistic answers in lieu of just encouraging more traffic on Cape Cod .

Issues of accessibility are manifold and center on the inaccessibility of the Plymouth & Brockton Terminal in Hyannis as well as their buses.

A new accessible terminal has been bandied about for years but somehow it never happens and remodeling the existing building that would necessitate ADA accessibility changes never occurs. The argument is based on the concept that you don't spend money to remodel something that is going to be replaced. That has a modicum of logic only if the time frame in question is reasonable--decades? I think not. So the time has come to just do the right thing and build or remodel now.

I have never traveled on a Plymouth & Brockton bus that goes from the Cape to Boston or Logan that has been accessible and I have traveled on them many times over the last fifteen years. Serving on the Governor's Advisory Council, past Secretary of the National Head Injury Foundation, past state rep. for MADD, past advisory council member for the Statewide Head Injury Program part of the Massachusetts Rehab Commission, and a founding member of the Massachusetts Home of Your Own program based in Boston required many trips to Boston or Logan, most of which were via bus. These trips justify my position as they were at various times to various locations in Boston.

Should such discrimination be allowed limiting travelers to be only able-bodied? I think not. We need accessible buses now.

Jean Ann McLaughlin
Harwich

PS Please, if possible, read this aloud at the meeting. Thank you.

C.C. Commission - PO Box 226 - Barnstable - 02630 - 11.11.99

Attn - Robt Mumford - Ken Buch.

~~If~~ the new roadways and shopping malls recently put into place reflect the ideas and the united opinions of the State and Town planning boards, and the citizenry on C.C., I wonder who has been representing the vested interests in this area, who from the evidence in place have out lobbied everyone else.

Now that C.C. has a substantial year round population, addressing traffic glut is a must, a no. 1 priority - To date all these cosmetic changes show little evidence that traffic flow has improved, glut eased. The problems remain, the focal points merely shifted.

Given the Capes graphics - land and roads, the best resolve to this whole mess is to inconvenience a few citizens for the benefit of all. Your article address some of needs but overlooks the important solving means available at a minimum cost and disruption - That is adopt a County philosophy of "Round-About" - that will include a massive change from 2 ways to one ways -, some signage, and very little paving or land taking.

~~I~~ personally have studied this problem for years. Unless we wish to convert C.C. into a post-war II Long Island, this suggestion can be tolerated, only a few residences will find new routings very necessary and some business' thinking they are on the wrong side of the st. This, and with making (Right-in - Right-out) the law, we could clean up this mess in a few months

People are animals of habit. These must be broken with new ones to be established. A clear map of the major rd. ways in place, the changes made, highlighting access roadways and connectors between Rtes 6A, ~~and~~ 28 and others running E to West, North to South would resolve nearly all the problems except adjusting traffic lights.

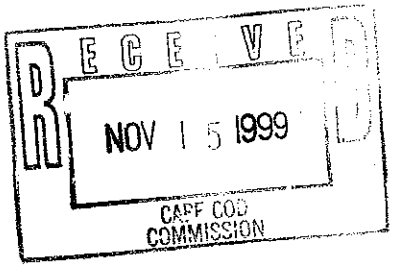
I hope you are ingesting these remarks, looking at the maps to see how well it would work and, be strong enough, pushing aside some of residential and business' vested interests that will be carping -

Sincerely -

Mel Bulheit
74 Wasuik Way
C'ville, 02632-2048, MA

November 11, 1999

Bob Mumford
Transportation Manager
Cape Cod Commission
PO Box 226
Barnstable, MA 02630



Dear Sir,

I heartily agree with your plans to improve and control the transportation on the Cape.

Now that building is being controlled somewhat and land being preserved, the road system is key to making Cape Cod a pleasure to live in.

However, little is said about the effect the Chamber of Commerce has on the Cape's problems.

They continue to advertise all over the world, inviting anyone who can walk, crawl or fly to come to the Cape.

They care less how the people get here or how they leave as long as they leave their money.

Who controls the Chamber? Noone. In my opinion they should go on a long vacation.

Edward J. Boyer

Edward J. Boyer
55 Ranch Road
E. Falmouth, MA 02536

Sally Gunning
P.O. Box 5, Brewster, MA 02631-0001
508-896-6227

Nov. 11 '99

To the Commission,

My husband & I agree with Bob Mumford's article in the Cape Cod Times and only wish to offer this note as a token of support.

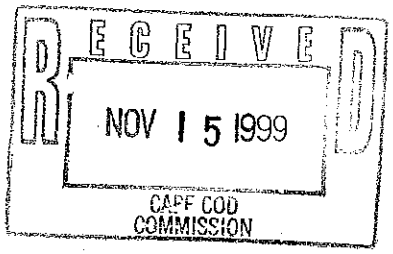
The commerce & trade groups don't seem to understand — bringing more business onto the Cape will in the end (and is now) costing us some of the business we do have. I hear it often from mainland strangers: "You live on the Cape?" How do you stand all that traffic?"

There are only so many places all those people can go. And the nature of this sandbar

is such that it will not sustain full occupancy much longer. The natural environment is sending out the yellow light now in the form of new algae beds in Cape Cod Bay, sodium in our wells and tainted shellfish. The message: GO SLOW.

With thanks for all your kind work —

Tom & Sally Jennings



11 Old Salt Lane
Yarmouth Port, MA 02675
12 November, 1999

TO; Robert Mumford

Dear Mr. Mumford,

I was unable to attend the CCJTC meeting today because of restrictions on my driving following surgery. I will try to make it to the later public meeting, but am not sure that I will be able to. I would appreciate it if you could send me anything that you have in the way of a brief summary of the proposals. There would be no point in sending me the whole proposal, because it would just join the other bulky proposals, plans, etc, that now fill my files to bulging.

What I am especially interested in the way of transportation planning are (1) proposals for public transportation service, and (2) programs to make walking and cycling more feasible, more attractive, and safer as alternatives to driving automobiles. Under the second category, two things would be needed. First, we need some county-wide body (The Cape Cod Commission is the obvious candidate) to encourage Cape-wide programs in the various towns to build sidewalks and bike paths. This would probably need to be supplemented by some sort of grant program to the towns to help with the expense of building sidewalks and bike paths, as well as an educational program to convince the citizens and the town boards of the desirability of such a program.. (The Yarmouth Selectmen are notorious in their indifference; they even failed to build a sidewalk called for in a plan, approved in 1984, to build a sidewalk on Center Street at the time the street pavement was rebuilt.) Second, we would need to revise some of our zoning by-laws to create small local business districts scattered throughout each town so located as to make it practical for residents to consider walking or biking to them instead of driving. In "the old days" the villages were small enough that walking was practical, but the expansion of settlement on the Cape seems to have taken Planning Boards by surprise, and little or no provision was made for creating such local shopping districts within newly created residential areas as we grew. Now we are faced with the unenviable task of trying to make changes in an entrenched system of development. It would not be easy.

Are my proposals practical? I will be interested in what you can send to me on the subject. Also, comments on this letter. And many thanks!

Sincerely,

Francis T. Worrell

Francis T. Worrell

File: Cape Transportation. Memos II disk

Voice message received at 8:17 am Wednesday November 17, 1999 - 70 seconds:

"Hi my name is Mark Wirtanen - I live in West Barnstable on Rt 6A, my phone number is 362-8209.

I had to go yesterday to the state house to speak on a joint public hearing - I couldn't come to the meeting - I wanted to come to the meeting in Barnstable at 2 pm.

I am completely in favor of what you guys have proposed - the last thing we need is more traffic on Cape Cod - the last thing we need is to make it easier to get to Cape Cod.

If you had ever continued to build that overpass over the Sagamore Bridge rotary - it would make this place so busy and so crowded - it would have been totally unacceptable.

And I think that Cape Cod Chamber of Commerce clown who spoke against it [the plan] is just trying to fill his pockets with cash - John O'Brien- those greedy people are trying to ruin Cape Cod for the fall and the spring as it is - calling it the shoulder seasons and trying to bring tourists down here - as it is it is just amazing what those people are trying to do.

I would like to see a little more maintenance on the sidewalks - if you drive down Rt 6A you'll see the sidewalks are being overgrown - they haven't been touched in years and years and years.

Other wise I think you guys are doing a great job.

Thank you very much.

Charles W. Kleekamp
20 Water Street
PO Box 1300
Sandwich, Massachusetts 02563-1300
(508) 833-1271
kleekamp@tiac.net

November 17, 1999

Cape Cod Commission
Subject: Regional Transportation Plan

Dear Members of the Cape Cod Commission,

I would like to express my opinion on the transportation needs of Cape Cod. I am a full time resident of Sandwich.

First.
I would like to make a strong case for the construction of an overpass at the Sagamore Rotary.
1. The current excessive delays in both directions during the summer and its extended season lead to frustration and rage among the visitors and residents alike who would like to pass more easily onto and off the Cape.
2. If there is a medical emergency for those of us who use Jordan Hospital in Plymouth, the delay could lead to disaster.
3. Heavy traffic leads to "shortcuts" by motorist through Sandwich (Rt. 130 and Rt. 6A) and other towns around the rotary. This in turn causes frustrating delays and tie-ups in town traffic.
4. Long lines of cars and trucks with engines idling in miles of backed-up, stop-and-go traffic on the central arteries certainly leads to more pollution in terms of air quality.
5. And finally, there is the safety concerning the madness of rotaries. The only accident I have had on the Cape was when a motorist on the inside lane of the traffic circle tried to exit in front of my car which was traveling in the outer lane to the next exit point! Further, undisciplined drivers frequently do not obey the yield law to enter the circle creating a dangerous collision situation.

My suggestion is therefore to replace the dangerous and time-consuming Sagamore Rotary with a full overpass interchange (or at least a half-interchange) to speed through traffic thereby greatly eliminating the four problems stated above. The layout of Route 3 directly in line with the bridge approach begs for such an easy solution.

I have read in the local press that the Commission is not willing to consider such a solution to this most onerous traffic problem on the cape. It seems the sentiment is a desire to reduce traffic on the cape by making it difficult and exasperating for visitors to come and go. If this is the Commission's intent, a far wiser plan would

be to simply impose a substantial seasonal increase on the county room tax for all motels, bed and breakfasts, and rental properties. Obviously this would impact the proprietors of tourist facilities, but you can't have it both ways, that is, less auto traffic and more tourist during the season.

Second.
I would like the Commission to consider railroad options at least to Boston and New York. I understand the New York connection was terminated just a few years ago. If you really want to reduce auto traffic, then give us a viable alternative. At least three round trip trains a day to Boston would be a welcome relief to those of us who have friends, relatives and businesses to visit in the Boston area. It may have to be subsidized until it picks up popularity, but a forward thinking transportation plan should definitely include reliable and on-time rail transportation similar to what is available in Europe.

In any case, do not allow the old rail rights-of-way to be lost in perpetuity for other uses. Please preserve the option for the possibility of one day rebuilding a much more efficient mode of travel than the automobile currently offers. The truly visionary planner should even consider a tunnel and for both auto and rail traffic at the east end of the Canal. Such a solution was found decades ago for Long Island.

Third.
I would like to suggest that the Commission encourage passenger, auto and truck traffic to the Islands from New Bedford. I don't believe the Government should run a steamship monopoly from the Cape to the Islands. Ocean Transportation is best let to private enterprise. Competition is the best judge of economics. I believe any one traveling from New York or points west would far rather take a ferry from New Bedford to the Islands in the peak season rather than put up with the frustrations of traffic delays getting to the Cape then, the anxiety of trying to get to Woods Hole or Hyannis in time to make your auto reservation on the ferry or for passengers to find distant parking, shuttle busses, etc. the terminal. I realize there is some progress on freight traffic from New Bedford, but I believe that port should be open to all bidders who would like to provide any and all kinds of transportation to the Islands.

Thank you for considering my inputs and criticisms. I hope they are helpful.

Sincerely,

Charles Kleekamp

Harris Contos
21 Bob-O-Link Lane
W. Yarmouth MA 02673-3803

November 17, 1999

Kenneth Brock, Chair
Cape Cod Commission Transportation Committee
3225 Main St.
P.O. Box 226
Barnstable MA 02630

Dear Mr. Brock:

Having reviewed the 1997 edition of the Cape Cod Regional Transportation Plan (CCRTP), I am submitting comments upon the plan's three-year update. I believe there are two principle areas where the plan is particularly deficient and requires remedial attention in order to be a more relevant and useful document to address transportation issues on Cape Cod.

The first area is traffic safety. Safety would seem to be an intrinsic component of any plan involving the mobility of people, yet it is not given sufficient exposition or emphasis in the CCRTP. One reason for this is that the plan is largely weighted toward matters of flow, volume, congestion, preservation of scenic character, and air quality; safety is treated largely as a subsidiary or an adjunct to those concerns. While traffic tie-ups do present with their frustrations, inconveniences, and economic and environmental consequences, the other very real costs of the transportation system here on the Cape, namely the number of crashes, injuries, and fatalities of vehicle occupants, bicyclists, and pedestrians is given nowhere near the amount of detalied analysis and attention as are matters relating to traffic flow and land use. For example, it cannot be found in the CCRTP or its appendices that for the period 1994-98, there were 25,234 traffic crashes in Barnstable County; 13,785 traffic-related injuries, of which 219 involved pedestrians and 273 involved bicyclists; and that there were 73 vehicular fatalities (source- Registry data from the Governor's Highway Safety Bureau, Aug. 1999). Nor can the trends in these data over time be found in the CCRTP.

These numbers should not be dismissed or considered irrelevant to transportation on Cape Cod, as they speak directly to the efficacy and suitability of transportation policies to move people safely safely from place to place, especially as the CCRTP explicitly states that much of "our effort will be focused on keeping what we've got - this is, by maintaining and operating our existing system", and that the plan calls for "developing and integrating alternate modes (e.g., bicycle and pedestrian) into the transportation system." A measure of the success of those CCRTP policies would be found in numbers detailing traffic safety.

Another aspect of the inadequacy with which traffic safety is discussed in the CCRTP is to be found in Section 2.2, "The People." There is no recognition of the traffic safety problems of the largely elderly population that lives on Cape Cod, nor is there recognition that in the summer time a very different, younger age demographic visits Cape Cod. Interestingly

enough, the crash experience of older drivers and younger drivers is very similar (source- National Highway Traffic Safety Administration), and these two groups are brought together for approximately twelve weeks in the summer. Yet this essential feature of traffic safety is not mentioned in the CCRTP.

A further concern in the treatment given to safety in the CCRTP is found in Section 4.5, "Working Together." This section includes statements such as "To promote cooperation among the various transporation agencies which have responsibility for the Cape's transportation system"; and "For the Regional Transporation Plan to be effective, new partnerships that bring together the various levels of government will be formed to make sure that transportation 'solutions' do not become problems." Another statement reads, "Another step in the process that has room for improvement is educating, informing, and hearing the 'customers.'"

Despite these well-intentioned statements, and the outlook expressed in Section IV, "Regional Coordination with Other Planning Efforts" of the Cape Cod Commission's Regional Policy Plan, it is troubling that entitites very much involved in traffic safety and that could make a valuable contribution to the formulation of the CCRTP do not figure among the aforementioned "customers." These entities include local police departments, local community groups such as "Keeping Cape Cod Alive", the Governor's Highway Safety Bureau, and the Office of Injury Prevention of the Massachusetts Department of Public Health. Instead, the CCRTP seems heavily reliant on entities with a construction bias, and even the Cape Cod Joint Transportation Committee is without a voting public safety or traffic law enforcement representative in its makeup.

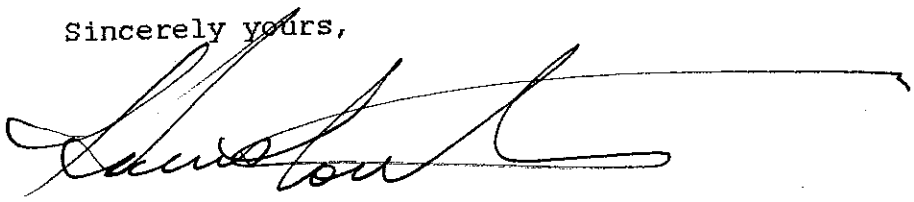
With these points having been presented, the hope is that safety will be accorded a far higher level of recognition, analysis, and incorporation into future iterations of CCRTP policies and strategies than was presented in the 1997 version.

The second area of concern on which I am submitting comment centers upon evaluation and analysis of the policies and strategies of the CCRTP. These policies and strategies do have a logic and rationale to them, but how successful and appropriate they are can only be determined after they have been exercised for a period of time. It is important to examine whether specific policies continue to address particular areas of concern, and at what cost, or whether they have proven inadequate or outdated, and therefore should be revised, replaced, or discarded.

Upcoming versions of the CCRTP should contain a comprehensive discussion on how the numerous policies and strategies are reviewed and analyzed for validity, effectiveness, relevance after a period of time; if a policy is found weak in any of these categories, it should be remedied or abandoned, rather than use it further as a guide. For example, there is a strategy calling for improving and increasing rail service to Cape communities. To what extent this is viable, practical, and worthy of further consideration is unknown, versus its inclusion as mere "window dressing" on an overall policy attempting to diversify modes of transportation to decrease reliance on the personal automobile. If it is not relevant, then it should not have a place in the CCRTP.

These comments are submitted with the purpose of making a more informative, meaningful, and useful Cape Cod Regional Transportation Plan. I trust they will be accepted in that spirit. Thank you for your attention to them, and I am available to discuss them with you in greater detail.

Sincerely yours,



Harris Contos

November 17

Cape Cod Commission

This note is to relay my tremendous relief when I read of your Cape traffic recommendations in the CC Times. With all the unabated growth that continues unabated it has been difficult to hope that anyone out there is trying to save this wonderful Cape and it has made it difficult to even think of trying to voice concern. At times it seems our public officials are blind to what's happening. And so I send

This note to THANK YOU and to urge you to never give up the good fight to preserve this place.

Most sincerely,

Carol Lyall

Box 24
Cotuit
428.4120

Subject: 2000 Regional Transportation Plan
Date: Thu, 18 Nov 1999 11:45:35 -0500
From: Patricia Johnson <hblaw@cape.com>
To: trans@capecodcommission.org

Do to the continuation of the Falmouth Town Meeting, I was unable to go to the Sandwich meeting. I have reviewed the material on the web site and feel very strongly that you should include as a project the Falmouth project of extending the Shining Sea Bikeway to North Falmouth. Planning, Design and Permitting money was voted at this Town Meeting and the project is already on the TIP money for FY2000. This project was discussed at your Spring round of meetings. The railroad right of way is being preserved but the use for a recreational trail is being allowed by agreement with the EOTC. Any updated information on this project can be obtained by calling the Town Administrator, Peter Boyer or contacting the Falmouth Bikeways Committee. This project has been endorsed by the Town Meeting in April 1998 and again, with funding for the design, etc. at this recently completed meeting. This is a very significant project. Patricia P. Johnson, 432 Wild Harbor Road, North Falmouth ljohnson@bu.edu

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Rosemary Abbott
29 Mary Chase Road
Eastham, MA 02642
255-4956

November 20, 1999

To Mr. Mumford and Mr. Brock

I have one idea to help the flow of traffic through Eastham: put a traffic light at the end of West Road in Wellfleet where it meets Route 6. This would not be popular with residents on Bridge, Herringbook and Massasoit Roads but many of us travel these roads now as a back way. However, in the summer we do not go all the way to West Road and Route 6 because you cannot get out with the heavy traffic.
I have never heard anyone mention this as a solution. Would it be possible.

I have another idea which may be one you are considering now: have the green arrow ALWAYS come on for the left turn from Route 6 into Samoset Road. That might actually prevent some of the rear end accidents which take place at this intersection at present.

Thank you,

Rosemary Abbott

Voice Mail Message to Bob Mumford

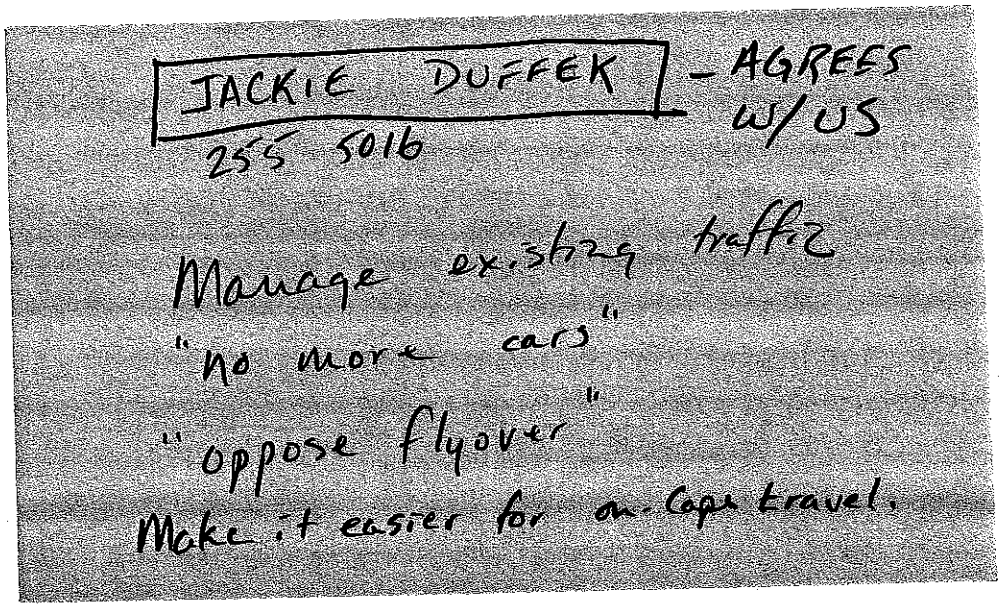
From Beth Ellis of So. Sagamore on Nov. 22, 1999

Calling regarding new Transportation Plan. Knows there is some opposition (maybe in No. Sagamore because of rotary).

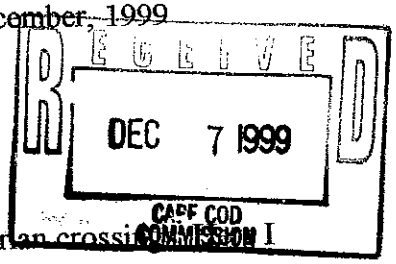
All for entire new Plan –supports not putting more bridges, overpasses, underpasses, off ramps, not even at No. Sagamore Rotary and hopes that plan is dead. Feels 3/4 of people who use rotary are new residents and knew it was there, however, they do need some help getting in and out of the rotary.

Good to improve transportation infrastructure of Cape Cod—not create more highways, to us or through us.

Support in Bourne and Sagamore for new plan.



11 Old Salt Lane
Yarmouht Port, MA 02675
2 December, 1999



To: Robert Mumford

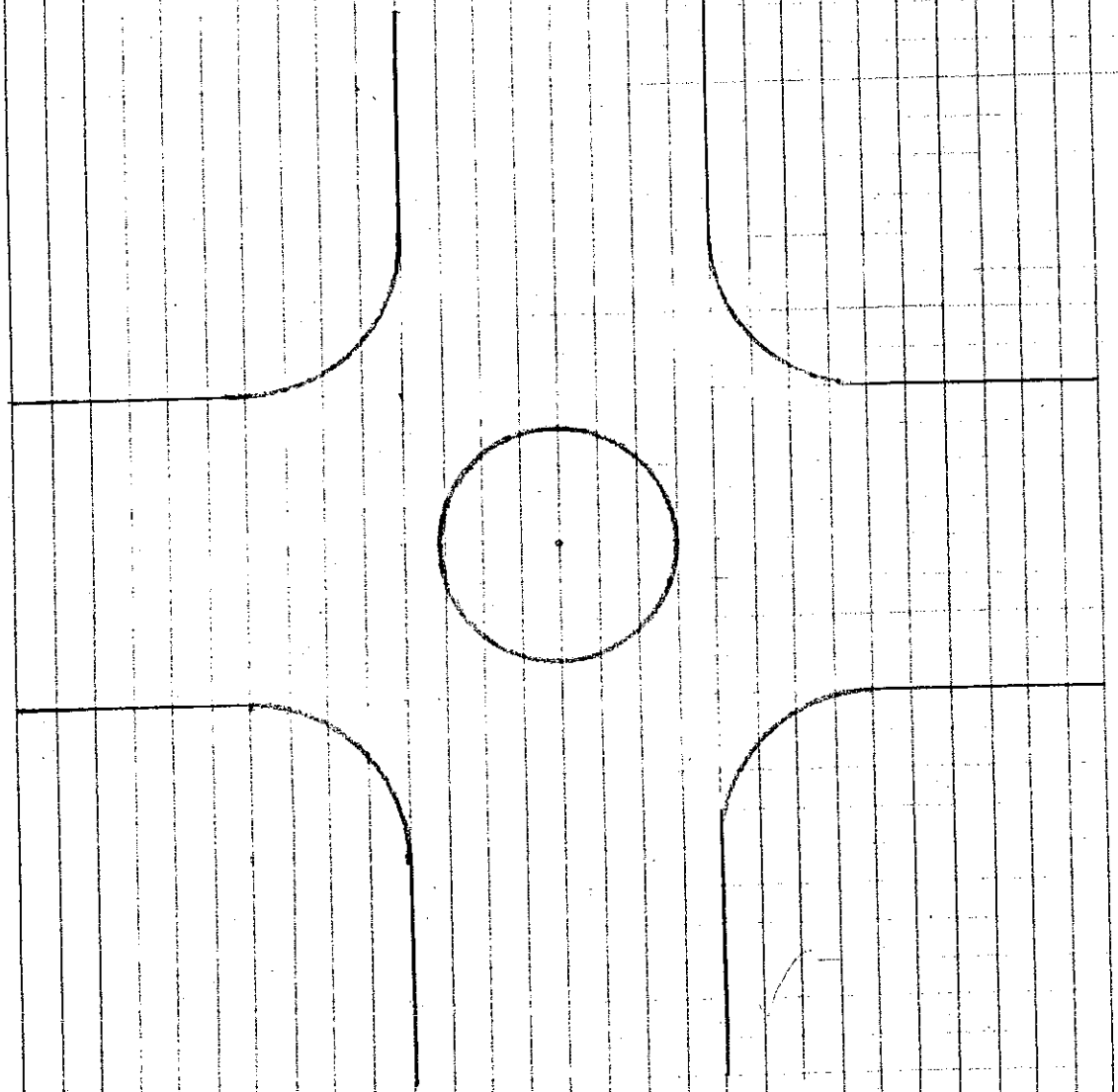
Dear Mr. Mumford,

I spoke at a recent meeting about roundabouts and pedestrian crossings. I wish to amplify on my remarks.

Since the recent hearing on transportation at which I spoke, I made my annual mid-November visit to Brattleboro, VT. In North Brattleboro, State Route 9 East comes off I-91 and shortly intersects and crosses US 5. Both highways are 4-lane at the intersection. In past years, there has been a set of traffic signals there. Because of the heavy traffic, an appreciable segment of it wishing to make a left turn, the cycle of the lights took quite a while. Upon approaching the intersection this year I was puzzled by a sign, "Yield ahead", and when I got there I found that the traffic signals had gone and instead there was a roundabout. My recollection is that the diameter of the central barrier was about the same as the width of the crossing roads, plus or minus (See diagram. Don't take the dimensions too seriously.) Of course, because of the roundabout you slow down and watch for other cars going around the loop (hence the "yield" sign), but on the average we got through that intersection appreciably faster than we had in the past, and traffic flowed smoothly. I must confess that I did not note how they took care of pedestrians in the new configuration.

They were able to put in a roundabout, as contrasted with a conventional rotary, because even though all four corners were developed (gas stations, fast food), it took only a small cutting back of the corners. An analogous intersection on the Cape might be Route 132 and Phinney's Lane, although with the relatively small amount of traffic on Phinney's Lane the need for a roundabout may not be compelling. The complex of off and on ramps on Route 132 just south of the US 6 overpass might be a good place for a roundabout, or more likely a rotary, since there are three widely spaced side roads. Or how about a roundabout at the intersection of Forest Road with Route 28 in South Yarmouth? With a small centerpiece just big enough to force traffic to slow down and deviate a bit, there may be enough space available to cut from the corners.

In Australia I have also seen roundabouts at intersections of two two-lane streets in residential sections, where there surely was not heavy traffic which would otherwise have required a traffic light. Here, I suspect, the aim was to slow traffic.



Subject: Life line to Cape Cod
Date: Tue, 7 Dec 1999 17:10:01 -0500
From: "Les Sokol" <lessok@netzero.net>
To: <trans@capecodcommission.org>

While we often hear how the Steamship Authority is the life line to the Islands, I consider the bridges, the life line for Cape Cod and the week nk in the reliability of vehicle traffic on and off Cape Cod. I believe the CCC should be taking a proactive approach in dealing with the Army orps of Engineers in the planning of maintenance, repairs, replacement and/or additional spans across the Canal. We've already heard how the volume of traffic is more than these bridges were designed to handle and common sense tells you the volume is going to continue to increase year after year with increased growth bringing more and more heavy trucks over the bridges and continually reducing the life of these bridges. The ape needs a regional voice to represent and advocate Cape Cods interests in the on-going integrity of two fully operational spans which will ecome more critical as volumes increase and maintenance/repairs increase with age on the existing spans.

sincerely;
Les Sokol

11 Harvard Dr. East Falmouth
540-6857

Sea Crest
OCEANFRONT RESORT & CONFERENCE CENTER

Chairman Stephand
Cape Cod Commission
Transportation Plan

Recd by fax
12/8/99

Dear Commissioners,

One proposal not made to improve traffic on the Cape, would be uniformity of speed limits on Rt 28. It is extremely difficult to enter this highway when cars are coming at you at 50 miles per hour. The limit stated at Mashpee-Falmouth line is 50 miles per hour. This changes to 40 at Martin Rd, if one sees the sign just after Red Brook Rd. At center of East Falmouth the limit drops to 35. My street - Seacoast Shore Blvd is at top of incline and there is limited visibility in both directions. There is no need for a 40 to 50 mile an hour speed in this thickly settled area - by population standard, classification by U.S. post office. There are no signs showing intersections. This state highway Rt 28 is in all actuality a city street and a lower speed limit

Old Silver Beach on Cape Cod
350 Quaker Road North Falmouth, MA 02556-2943
508 540-9400

Sea Crest
OCEANFRONT RESORT & CONFERENCE CENTER

would save lives, and make it easier for an elderly papulation of retirees - currently estimated at over half the population of Falmouth to maintain their independence and use only form of transportation we have - the auto. No sidewalks are available on Rt 28. There are no alternate routes in most cases. East Falmouth is heavily populated. three seasons of the year and deserves more attention than bike paths used mainly for recreation in one section of Falmouth.

Most suggestions already made are well thought out. I do believe every effort to reduced traffic should be made. More mailboxes would eliminate daily trips to P.O boxes, for example. Sincerely

Jean C. Halloran
P.O. Box 3203
East Falmouth, MA 02536

H | Halloran
PO Box 3623
East Falmouth, MA 02536

Cape Cod
outh, MA 02556-2943
00

171 Captain Crosby Rd
Centerville MA 02632
508 428 4171

Robert Mumford
Lev Malakhoff
Cape Cod Commission

After reading many articles on the bridge traffic over the canal in Cape newspapers, particularly the Times, I thought my views would help in decision making. For many years I did the Friday evening and Sunday evening trips over the bridges with long delays and some consternation. It was worth it as the air seemed better on the cape side coming down and returning to work on Sunday evening was a hating trip, tempered by refreshment and pleasant memories.

For five years we owned a summer house in West Hyannisport after twenty years of summer renting. Now for the last eight years in retirement we own a nice house in Centerville. We, Ann and I, love full time life on the Cape and are heavily involved

in its many offerings - viz. Academy for Life Long Learning (ALL) which meets at Cape Cod Community College, classes at the Cape Cod Art Assoc., golf at Hyannis Golf Club, CCD teaching at Our Lady of Victory Church, the Osterville Men's Club and several other activities. We are Capers - and beyond ~~defeu~~ visits annually to the homes of our three sons, are reluctant to travelling to the Mainland.

I sympathise with the challenges to the Commission regarding traffic on the bridges and its attendant Rotary problems - not to mention the Canal side Development in the Bourne Bridge area.

My thoughts on the challenges are these:

1) The current access from both bridges seasons to bring maximum traffic to the

Cape roads each summer. Building an overpass on the Sagamore Rotary would simply exaserbate the maximized Cape roads below the bridges.

2) Leave things alone since the Cape's accomodations and businesses (restaurants, motels etc.) fill up each year now.

3) Oppose entrepenuers' efforts to citify our island. This will enrich the few - while diminishing the charm of Cape Cod - that calls the many who see great beauty here.

4) Avoid those who seek to widen our roads to "superhighways". Support the wisdom of the Old Kings' Highway (6A) people because they are right!

5) for those - our friends from N.Y., N.J. Conn. and elsewhere - devise a non bridge alternative - an access by summer steamship to Hyannis and below. Perhaps a high speed catamaran!

I strongly support the Cape Cod Commission and commend its constancy. Its ability to say "no" to unwarranted expansion with support from facts, figures and citizen support is refreshing.

Sincerely
Bill Corbett

Regional Transportation Plan Questionnaire -- Comments

While I agree with the basic premise that the Cape has reached the saturation point for highway traffic and it makes little sense to increase highway capacity to the Cape, I'm disappointed the draft 2000 Regional Transportation Plan doesn't present more in the way of public transit options. The plan should include non-highway alternatives that could be developed with reasonable costs and would attract significant ridership.

Public transit should serve the Cape in two ways:

1) Non-highway alternatives should be available to visitors traveling to the Cape, encouraging visitors to leave their cars at home.
2) Public transit services on the Cape should permit visitors and residents alike to get around without the need for a car.

The draft plan does seem to address the second item, on-Cape public transit services. However, the plan should be expanded to better address non-highway transit alternatives for travelers to the Cape.

The 1997 plan included a call for seasonal rail service, yet the draft 2000 plan does not. Why? Consider the following facts:

- During the mid-1980s, the old Cape Cod & Hyannis Railroad offered summertime service from the Braintree Red Line terminal and Amtrak's Northeast Corridor in Attleboro to Falmouth and Hyannis. In 1987 and 1988, the Cape Cod & Hyannis Railroad carried over 100,000 passengers per season on its trains over these routes. This ridership was achieved even though there was no direct rail connection into Boston and the trains operated over slow track between Braintree and Middleborough. The service ended when the state cut support for this as well as many other programs during the recession and state budget crisis of the late 1980s. The CC&H ridership clearly demonstrated a large number of summer visitors to the Cape are willing to take the train if the service is offered.

- Little in capital cost should be required to restore seasonal rail service. During the 1980s, the state invested over $50 million rebuilding the rail lines between Attleboro and the Cape. As a result, the track structure west of the canal can support 59 m.p.h. service, while the track on the Falmouth and Hyannis lines can support 40 m.p.h., more than adequate to support a resumption of seasonal rail service. In addition, during the past decade the state has restored the rail link between Boston's South Station and Braintree, and has rebuilt the rail line from Braintree down to Middleborough. The Middleborough line now supports 79 m.p.h. commuter rail service. With these improvements, it is reasonable to expect that if seasonal rail service were offered today, ridership to the Cape would be significantly higher than in the CC&H's days.

The draft 2000 plan does include expanded ferry services to bring visitors to the Cape. While I do support expanded ferry service, I find it hard to believe it can be implemented as cheaply as rail, or attract the ridership that has already been demonstrated with rail as cited above. While the rail infrastructure already exists, facilities to support ferry service will have to be developed, and there are a limited number of Cape locations that can be served by boat.

The 2000 Regional Transportation Plan should include:

- A call for the reintroduction of seasonal rail service from Boston, consisting of one or two morning trains to Falmouth and Hyannis and two late afternoon/early evening return trips operated daily between Memorial Day and Columbus Day weekends;

- Coordination of on-Cape public transit service to serve visitors arriving and departing via rail;

- Development of a pilot ferry service to bring visitors to the Cape – again, coordinated with on-Cape transit services; and

- The eventual reintroduction of New York train service, consisting of a daily round trip between Memorial Day and Columbus Day weekends.

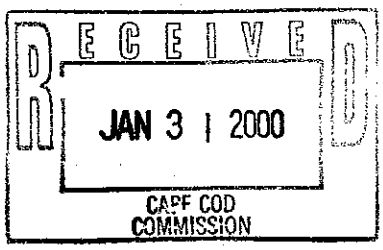
I would also recommend that management of all public transit services, including rail, be handled locally if possible. While the Cape rail service of the 1980s was well patronized, it unfortunately was also very badly managed by the state, causing the service to be needlessly expensive. It's clear that the rail service suggested above could be operated at a significantly cheaper cost than the CC&H service of the 1980s.

While transportation dollars might be tight these days in light of Boston's Big Dig, the items listed above are all reasonable in scope and would serve to encourage both in-state and out-of-state residents alike to visit the Cape. This would boost the Cape's economy (and the state's tax coffers) without worsening the Cape's traffic problems.

Thank you for your time and consideration.

Letter enclosed with Survey M47
Received 12/27/99
From Bill Reidy
37 Burgess Avenue
Westwood MA 02090

JULIE C. MOLLOY
49 TUPPER AVENUE
SANDWICH, MA 02563
(508) 833-3732



January 27 2000

Mr. Robert Mumford, Transportation Program Manager
Mr. Kenneth Brock, Truro Representative
Cape Cod Commission
3225 Main Street
P.O. Box 226
Barnstable, Massachusetts 02630-0226

Re: *Draft Regional Transportation Plan*

Dear Messrs. Mumford and Brock:

I commend you both for your efforts with respect to the draft Regional Transportation Plan, and your efforts to speak to the various communities about it. However, I was disappointed to learn, by way of January 20th's article in the *Cape Cod Times*, that your meeting with the Town of Bourne Planning Board is being held on February 1st. Because of my duties as the Chair of the Sandwich Planning Board, I will not be able to attend your meeting with the Bourne Planning Board. I hope that in the near future you will be able to speak to the Sandwich Planning Board on this topic as well. Thus, I submit my comments regarding certain publicized aspects of the draft of the Regional Transportation Plan in this letter for your consideration, and in anticipation of such a future meeting.

I. The Problem: Tourist Season Traffic Over-Burdening Canal Area

The Commission has properly identified that an area of great concern, both to residents of and visitors to the Cape, the "Cape Cod Canal area, particularly the Sagamore and Bourne rotaries," as you aptly point out in your article in the *Cape Cod Times*. To that statement, however, I would add the bridges themselves. The facts, as noted in the January 6, 2000 edition of the *Cape Cod Reporter*, show (not surprisingly) that during the month of August 1999, two-thirds of the traffic using Route 6 consists of vehicles registered to off-Cape locations, either out of state or somewhere off-Cape in Massachusetts. The undeniable facts (acknowledged by all, it seems) are that the traffic tie-ups and delays at the bridges constitute a the problem for the entire Cape, but most especially for Bourne and Sandwich, which, of necessity as the sole access points, bear the most significant burden, and that these tie-ups and delays are at their worst

during the "tourist season" (which begins in late May, and continues through the end of September, finally tapering off in October).

While many Cape Cod residents indeed travel "over the bridge" and off-Cape for work on a daily basis, absent reduced lanes due to ongoing construction or maintenance problems, the Cape's transportation situation, considering only the traffic generated by year-round Cape residents, is satisfactory to meet the amount of Cape-year-round-resident-generated vehicular traffic travelling through the "Canal area", as demonstrated by the graphic of April 1999 traffic in the January 6, 2000 edition of the *Cape Cod Reporter*.

Although I am unaware of any detailed traffic studies documenting this to date, I doubt many would disagree that the majority of the "tourist season" traffic over-burdening the Canal area bridges and roads is due to off-Cape vehicular travelers whose destination is Cape locales other than Bourne and Sandwich. Over the years, the burden borne by Sandwich and Bourne due to increased tie-ups and delays has increased to a point where it is now unbearable.

My suspicion, unconfirmed though it may be, is that this increased burden has a direct correlation to the tourist-season population increases not only in Sandwich and Bourne, but most noticeably in Mashpee (which in recent years has enjoyed the dubious distinction of being the fastest-growing town on Cape Cod, although I believe that "honor" is now held by Sandwich), Falmouth, the Islands, Barnstable, and all other towns located further "down Cape". Since one's choice of bridge is largely dictated by one's ultimate destination, the Bourne Bridge is used primarily by persons with destinations of Bourne, Falmouth, Mashpee and Martha's Vineyard (via the Steamship Authority), while the Sagamore Bridge is used primarily by those whose destination is the mid- or -lower Cape towns.

II. Practical Burdens Faced by Bourne and Sandwich Due to Tourist Traffic

From personal experience, I can offer some perspective of what the situation actually is, having witnessed the traffic flow during the summer months at both bridges and rotaries. Although I live in Sandwich (in the Town Neck area, access to and from which is impacted directly by tie-ups and delays quite frequently during the "tourist season"), my father has a home in Pocasset. As a result, most weekends find me traversing the Sandwich Road along the Canal either going to or returning from Bourne. I can state unequivocally that the traffic is heavy along this roadway, and at both the Sagamore and Bourne rotaries all weekend, every weekend, during "tourist

season". It is especially heavy, to the point of being intolerable on Sundays, on the roads leading to both bridges, any time after noon.

Heading towards the Bourne Bridge, more often that not, Route 28 north of the Otis Rotary is stalled with a three-mile back-up to the Monument Beach exit area. The Sandwich Road entry to the Bourne rotary is similarly backed up routinely, heading back towards the Gallo Ice Arena. Heading off-Cape via the Sagamore Bridge, is routinely backed up to Exit 2 on Route 6 as of noon, and builds eastward from there, not infrequently backing up as far east as Exit 5 in West Barnstable. With respect to both bridges, delays continue not infrequently to 6:00 p.m. and sometimes 7:00 p.m.

On the Cape-side, Sandwich residents who live or need to go to or from any points west of Route 130 are well-advised to avoid doing so if possible on weekends, but most especially on any Sunday after noon, when those travelling off-Cape frequently leave Route 6 at Exit 2, travel down Route 130, to get to Route 6A and to re-access Route 6 at Exit 1, by the Christmas Tree Shop. It is not unusual to see traffic backed-up (and by this I do mean stop-and-go the entire length of the back-up) from Route 6A along Route 130 to the Sandwich Town Hall, with more cars coming.

Some "wily" travelers decide to travel west the entire length of Route 6A, enjoying the quintessential "Sunday drive" along historic Route 6A. Then, making vain efforts to avoid entanglement in the back-ups occurring at the intersection of Route 6A and Route 130, try to ease ahead of a few cars by bearing right onto Tupper Road, which loops from Route 6A just across from the old Sandwich Cooperative Bank (now Compass Bank) and rejoins Route 6A across from the intersection with Route 130. The advantage to this "evasionary tactic" is that by accessing Route 6A from Tupper Road, the traveler does not have to cross the opposite travel lane (as is needed if accessing Route 6A from Route 130), and can edge the nose of his car into the west-bound traffic on Route 6A, heading for Route 6 itself more easily. This results in back-ups along Tupper Road, which, at the worst that I have seen, back up eastwards to the Sandwich Auction House. Needless to say, the traffic also backs up along Route 6A itself, to just west of the Stop & Shop.

Again, these conditions occur on a regular basis every weekend during the tourist season, and have for a number of years. On the off-Cape side, traffic delays and back-ups most frequently and regularly occur on Fridays (unless holiday weekends are involved), anytime from noon through the early evening hours, and not infrequently consist of stop-and-go traffic from Exit 2 on Route 3 south, to the Sagamore rotary, over two miles.

III. Solutions Necessitated by These Problems:

To what conclusions do these observations and facts recited above lead? The inescapable conclusion is that the existing road/highway infrastructure is insufficient and inadequate to accommodate ***existing*** traffic during the five month tourist season, from May through September of each year. The logical and obvious solution to remedy this problem is to upgrade the road/highway infrastructure to accommodate the existing vehicular travel, which overburdens the existing roadways for substantial amounts of time each year.

How should this be done, and indeed how would this be handled, if one considered nothing other than the basic need to and goal of upgrade of the roadway infrastructure? One would do two (or three, depending on how you count) things:

(1) widen the highway approaches at each bridge both to and from the Cape to three lanes for each lane of travel (this three-lane travel would drop down to 2 lanes at whatever point it is that traffic drops off such that a 2 lane road is sufficient to carry existing traffic), and eliminate all rotaries;

(2) widen each bridge by adding a third lane in each direction, *or* build two new bridges side-by-side to each existing bridge, so that each crossing is served by two bridges, one exclusively for north-bound traffic and the other exclusively for south-bound traffic, with each bridge structure containing three travel lanes.

Much like the "Big Dig" project in Boston, these improvements are the only truly logical solutions to resolve the existing traffic problems. Also much like the "Big Dig", most assuredly these improvements would be hugely expensive. And, finally, much like the "Big Dig", this would likely be somewhat controversial.

IV. Comments and Thoughts:

This brings me to the following comments and thoughts, some in response to anticipated "nay-sayers" of this proposal:

1. The "If You Build It They Will Come" Fears:

To those who would argue that such improvements should not be made for fear that it will simply draw more traffic and development, such a response simply ignores the realities of the situation. The lack of adequate roadway infrastructure has most assuredly *NOT* prevented the traffic from increasing, nor has it appreciably slowed development. Instead, development and traffic have increased apace while the roadway infrastructure has woefully lagged behind. "They" are here, and "they" show no signs of leaving. The policy of 'do-nothing-in-the-hope-that-"they"-will-go-away' has failed -- abysmally from the point of view of Bourne and Sandwich residents. This policy must change, and the adverse impacts visited upon these two gateway communities must be mitigated with real plans to improve the existing situation.

While one cannot ignore that development in both Bourne and Sandwich have contributed to some extent to the increased adverse traffic impacts, on the whole, it is increased development in Cape communities other than Bourne and Sandwich which bears the larger share of blame. Bourne and Sandwich, however, of necessity (as the only means of access on and off Cape) bear the lion's share of the increased adverse traffic impacts occasioned by increases in local traffic and development in *all* Cape communities. Before any of the increased traffic even reaches Main Street in any other Cape or Island town, it travels through the streets of Bourne and Sandwich. In Sandwich, this traffic routinely travels on our local streets our streets, in an effort to avoid the over-congested highway. In Bourne, this congested highway traffic impairs residents' ability to access one part of town from the other. No other Cape towns bear a similar burden.[1]

[1] While the current controversy in the towns of Falmouth and Barnstable regarding overburdening of their local roads due to island traffic generated by the Steamship Authority is similar in some respects to the overburdening of Bourne and Sandwich roads, the burden carried by Bourne and Sandwich includes not only island-bound traffic, but that of all Cape towns.

(2) "There is No Money Available" Argument:

Lawmakers always tell us there is no money; that is, it seems, the standard answer. When the "Big Dig" was first proposed in the 1980s, nay-sayers argued that that project was too expensive, and that funding would never be available, either. And yet, funding *did* become available because the need could not be denied. Similarly, we must address the extant need faced by Bourne and Sandwich today, so that funding to remedy these traffic problems does become available in the future.

Certainly if we do not seek funding, it will not materialize on its own. Thus, we must lobby our local, state and federal representatives to fund this much-needed project. In order to do so effectively, we must prepare a comprehensive plan for these improvements. This is, as it should be, the task of the Cape Cod Commission, which is charged with protecting the Cape and planning for its future as a whole, considering the needs of all Cape communities. In doing so, the Cape Cod Commission should also consider levying transportation mitigation fees upon projects in the mid- and lower-Cape, and setting aside these funds for construction of adequate roadways and structures in the Canal area. Such mitigation fees are long overdue, and perhaps would provide the best evidence that the Commission is indeed concerned with the fate of upper-Cape residents.

(3) Environmental Impacts:

There are those who will object to such a project on the grounds that widening of highways and building of bridges may have an adverse impact on the environment. There is little that we, as human beings, that does not have some adverse impact upon the environment. As a society, we make judgmental decisions, after weighing the advantages to be gained in terms of quality of life by a particular action against the potential disadvantages which may result from such action.

By alleviating the seemingly endless traffic back-ups and delays, we will not only be relieving the Bourne and Sandwich communities of the stress and inconvenience of traffic congestion and delays, but we will also be remedying a not insignificant source of pollution generated by stalled vehicular traffic, as well as significant wasting of precious environmental resources needlessly wasted standing in traffic. Because of the unfortunate dearth of public transportation on the Cape, one of the (if not the) most significant sources of pollution is generated by vehicular traffic. Reducing this as much as possible seems a worthy environmental goal, worth whatever trade-offs are required.

(4) Alternative Transportation:

Some will suggest that we should explore alternative means of transportation, such as increased rail service. While I would applaud any and all efforts to reinvigorate rail transportation as a means for both the commuting and vacationing public to travel to Cape Cod, this seems an illusory solution, given the American "love-affair" with the automobile, and increased local resistance to resumption of use of the old rail lines, never mind increasing or expanding these lines. Unfortunately, there does not seem to be a consensus supporting rail travel and necessary improvements and installations which would be needed to make this a viable alternative to motor vehicle travel on Cape Cod.

The Cape Cod Tourist train has been vehemently opposed by those residing along the rail tracks; in Falmouth, there is a significant minority (if not majority) who wish to remove the rail beds, and create a bike path (a great free-time activity and meritorious goal, albeit an unlikely mode of transportation for those living in Falmouth and travelling to Boston). I fear that any proposals along these lines will encounter a brick-wall of opposition akin to that of Hingham residents to the resumption of the Greenbush commuter rail though their community. America's abandonment of the rails and rail travel, occasioned by the development of the automobile, seems to have burdened rail travel alternatives with too many hurdles to make investment in such an infrastructure unlikely, much to everyone's loss.

(5) Diverting Sagamore Bridge Traffic by Blocking Access at Exit 1:

In your article, there is a suggestion that the draft Plan contemplates closure of access to Route 6 at Exit 1 in Sagamore, and diversion of traffic to the Bourne Bridge via the Sandwich Road on the Cape-side of the canal. This proposal seriously underestimates the existing congestion along the Sandwich Road leading to the Bourne Bridge, as well as existing back-ups onto the Bourne Bridge. This proposal will not solve any of the existing problems, and will simply increase the severity of the problem in Bourne, with potentially no amelioration of the problems in Sandwich.

V. Conclusion

In summary, as a resident and official of the Town of Sandwich, I call upon the Cape Cod Commission to draft a regional transportation plan which truly addresses and provides substantive solutions to the existing transportation problems and burdens

suffered by the communities of Bourne and Sandwich. This plan must include projects which will truly ameliorate and, hopefully, alleviate the disproportionate traffic burden imposed upon Bourne and Sandwich by virtue of their "gateway" location. Simultaneously, we must lobby for sufficient funding to accomplish these projects. The residents and officials of Bourne and Sandwich, together with the Cape Cod Commission must bring this to the attention of state and federal lawmakers, in an effort to secure the necessary funding.

Thank you for your time and attention in this matter. If you have any questions, please feel free to contact me.

Very truly yours,

Julie C. Molloy

cc: Ms. JoAnne Miller Buntich, Director of Planning & Development, Town of Sandwich
Mr. Patrick Ellis, Chair, Board of Selectmen, Town of Sandwich
Mr. George A. Dunham, Town Administrator, Town of Sandwich
Mr. Jay Schlaikjer, Sandwich Representative to Cape Cod Commission
Ms. Margo Fenn, Executive Director, Cape Cod Commission
Planning Board, Town of Bourne
Board of Selectmen, Town of Bourne

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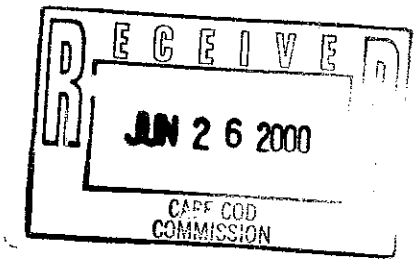


June 21, 2000

Public Relations Department
Bonanza Bus
One Bonanza Way
P.O. Box 9527
Providence, RI 02904

Dear Sir or Madam:

I am writing to comment upon your recent change in policy on carrying bicycles, specifically as it pertains to the Boston-Woods Hole route. For many years your policy has been to accept an unboxed bicycle as luggage to be stowed (by the passenger) in an underside luggage compartment, for a modest fee, contingent upon luggage space available.

Recently I was surprised to learn that under a new policy you now require a bicycle to be dissembled and enclosed in a box. I was informed by your staff that Bonanza charges $10 for the box at South Station (it was unclear whether that charge replaces the fee), and that boxes are not available at Woods Hole for the return journey (the staff did not know whether a box would be available at the Falmouth station instead--but the bus did not stop in Falmouth!), nor whether the $10 charge was each way or round trip. In other words, the staff could not tell me if there was any possible way under your new policy, that Bonanza would be willing to transport the bicycle back to Boston other than my taking the massive box with me, somehow, by bicycle, to the Vineyard, then later returning to Woods Hole with same box!

Over the years your service always worked well for me, despite the risk of a bus being too full of "regular" luggage to accommodate my bicycle (occasionally requiring my waiting for the next bus back to Boston). I am still quite willing to pay the modest fee for this service. I don't believe that carrying unboxed bicycles negatively impacted other customers nor Bonanza staff. In my observations over the years I also noticed that relatively few customers bearing bicycles availed themselves of this service, a service which, while it may have generated negligible profits, cost Bonanza nothing to provide.

Now, however, requiring one to dissemble one's bicycle--for such a short journey--necessitating an extra hour of work at each end of the journey, along with carrying a significant weight in tools, along with the Box Fiasco, is a very effective disincentive to bringing one's bicycle on a Bonanza Bus to the Vineyard via Woods Hole.

While other bus lines throughout New England are progressing towards enhancing intermodal transit options (P&B to Hyannis, Concord Trailways, and I even understand that Greyhound!! has removed their longstanding dissemble/box policy on many of their New England routes), it is distressing to see Bonanza Bus Lines regressing in the opposite direction. Especially with the glut of automobile traffic becoming such a huge issue on the Cape and the Vineyard as well, I would think that Bonanza would join in the effort to remove obstacles to less congestive, less polluting forms of transportation such as bicycles, rather than raise new obstacles. I cannot imagine this new policy would benefit anyone other than perhaps bicycle rental agencies on the Vineyard (Bonanza hasn't entered into a partnership with Vineyard bike rental companies, have they?).

I hope that Bonanza will rethink this policy change, and I look forward to your reply.

Sincerely,

Linda Kitch
59 Putnam Street
Somerville, MA 02143

CC: Massachusetts Executive Office of Transportation and Construction
✓Cape Cod Commission
Massachusetts Bicycle Coalition

Subject: Email to Mr. Schofield
Date: Sat, 15 Jul 2000 12:13:12 -0400
From: Stella Callagee <scallage@capecod.net>
To: trans@capecodcommission.org

Dear Mr. Schofield,

On Saturday, July 15th, the Cape Cod Times ran a very interesting article about your traffic modeling for the rotaries. From the gist of the article it appears that there is much work to be done before decisions can be made concerning definitive changes. Yet Cape Cod Times reporter Susan Milton wrote in a companion box that the Cape Cod Joint Transportation Committee unanimously endorsed the plan of the developer for CanalSide Commons to make over $7M of roadway changes to and around the Bourne Rotary. Was your analysis a basis for this approval?

I am very concerned about the roadway behind the State Police barracks as I live in Bourne Village. I have closely followed the CanalSide Commons project and have read the recent Cape Cod Commission Staff report. If the Cape Cod Commission is now preparing findings that support this roadway work, please help me understand the following:

1. With the anticipated significant rise in car trips generated by the traffic, how will the roadway construction benefit rotary traffic problems?
2. Can you assure the residents in the area that motorists backed up on the new loop will not fan out onto neighborhood roads seeking relief from the back ups?
3. Can you assure those of us in Bourne Village that the deforestation caused by the roadways will not expose us to air quality problems and significant noise increases?
4. Will the loop as proposed require significant signage on the Bourne Bridge and in areas that will change the community character of Bourne Village. In fact, how will there be anywhere but on the Bourne Bridge and in the neighborhoods that large signs can go up that will tell motorists they need to take an immediate right hand turn?
5. In winter weather when the Bourne Bridge experiences icing conditions, how will an immediate right hand turn be addressed? Will the Bridge need to be treated with substances that may wash down into local neighborhoods and eventually into the Cape Cod Canal?
6. When the roadway dumps the traffic onto Sandwich Road, how will users of the Bourne Recreation Area (which is right at the point of "dumping") be able to access the area? Will there be a stacking lane put in which will then take a two lane country road to five high speed lanes? Since the Bourne Recreation Area will be a draw for people in the resort hotel in the new project, will there need to be a crosswalk with signal lights? This will require additional signage and overhead signal masts? Not only will such a light back up traffic but it will also require signage that is not a part of the current community.
6. The developer stated in his SDEIR that he would fund his roadway improvements by a) grant money b) Town of Bourne Chapter 90 funds and c)private funds. Does the Cape Cod Joint Transportation Committee have the ability to require the State or Town grant a developer funds?
7. If the roadway work is completed as proposed - who then pays for the upkeep of the roadways - the State or the Town of Bourne or both?

I thank you in advance for your help.

Sincerely,
Stella A. Callagee
7 Farnum Road
Bourne, MA 02532
508-759-9282
email <scallage@capecod.net>

cc: Gay Wells
Margo Fenn

Subject: Bicycling in Barnstable- NOT!
Date: Wed, 19 Jul 2000 00:05:54 -0400
From: Daniel Snodgrass <dws1@mediaone.net>
To: trans@capecodcommission.org

To Whom It May Concern;

I do not know if I will get a response to this, but I am writing about our appaling lack of bike paths and/or shoulder space on the existing roads to share with cars and bicycles. This is for the town of Barnstable especially Marstons Mills where we live year round. My wife and I enjoy riding our bicycles especially in the summer but unfortunately must drive all the way to Dennis to the rail trail or are limited the canal for a safe ride. I use the Conservation area trails since my property is adjacent to that area off of Race Lane. (Links Lane is our primary residence with additional property owned by us located off of Flint street on Chuckles Way) but my wifes ability to use the trails is limited since this is for "mountain bikes" only. She will not ride on any Barnstable street or road due the the traffic. I do use Race Lane for my road bicycle, but I also know it is a very risky proposition due to the traffic and the lack of space to manuever, not only for myself but the cars and trucks that use that road extensively. I was accustomed to riding over to our rental property and other locales in the village but lately I have been feeling like a target and my wife is concerned she will be receiving a call telling her of my untimely demise. I have tried to vary my times to be out of the 'peak' traffic times, but with Race Lane and Rt 149, it is hard to say when is a good time. We are as are so many people here "washashores", but we wouldn't live anywhere else. With the latest real estate boom that we are experiencing, reminince the early 80's, and the increase in population in the Mills and adjacent towns and villages we need desperately some priority given to making our streets safer and enjoyable for the people who live here. As it stands now, the only way to travel through the Mills is by auto since that is the most safest mode of transportation. Bicycling, walking/jogging is definately out of the questions on what were once quiet streets which have become major thruways to Centerville, Hyannis, Mashpee and Sandwich.

I also know that changes do not occur overnight, and I now hope they just occur in time for me to enjoy them in this life time. I do not expect to see anything done this year or the next since I am sure you have already set your priority and plans pretty much in stone for the upcoming years. What I would like to see is the following accomplished that can be accomplished with the resources we have at hand. They are as follows:

1. More traffic and speed enforcement along Race Lane and Rt 149. Especially past the Marstons Mills Airport going west to the Sandwich line.
2. Reducing the speed limit to no more that 35 mph on Race Lane and Route 149 where it is uninhabitable, but where you have homes to no more than 30 mph.
3. SHARE THE ROAD signs along Race Lane and Rt 149, presently there are none.

The long term solution is wider shoulders, 2 feet of additional asphalt on each side would be sufficent, but again I am well aware of the limitations - ie: easements, resources, and political willpower.

I surely hope it is not going to take an accident or death, (especially my own) to get the commision to speak out on this. I am well aware of your limitations but I am also aware of your ability to influence the other commisions here in making the correct decisions.

Respectfully yours,

Daniel W. Snodgrass
31 Links Lane
Marstons Mills

11 Old Salt Lane
Yarmouth Port, MA 02675
August 8, 2000

To: Robert Mumford
From: Francis Worrell

Returning on the Logan bus from a trip recently, I noted that as we drove south from the mid-Cape highway on Route 132 there was a slow-moving solid line of northbound cars reaching from the mid-Cape back as far as Independence Drive. This was in early afternoon in mid-week, not the usual heavy traffic time, I would think. What shall we do about it? Why, widen Route 132, of course! That has been the sort of response we have had in the past: if the traffic is too heavy, make room for more traffic.

The situation I have just described is repeating itself all over the Cape. A car driving at the speed limit on Route 6A will quickly accumulate a following of 10 to 15 cars. Shall we widen 6A? Over the dead bodies of the Old King's Highway District Commission! Route 28 in Hyannis and Yarmouth is one long line of cars. Should we widen Route 28 to two lanes each way? How? One could cite many similar examples of the traffic situation on the Cape. In particular, there has been increasing concern about delays at the Sagamore Rotary. There was said to have been a four-hour backup of Cape-bound traffic at the Sagamore rotary on a recent weekend. The solution proposed is to build a fly-over over the rotary, and this is what I wish to address.

There are two laws about automobile traffic. The First Law of the Automobile states, "The demands of the auto are insatiable." The Second Law of the Automobile is, "If congestion is reduced in a certain area the immediate effect will be to reduce the congestion in that area. But in the long run, automobile drivers who have hitherto avoided the congested area will now come, and eventually the congestion will build up. It may not build up in the area just improved, but will build up at other locations further down the highway." If a fly-over were to be built over the Sagamore rotary, there is no doubt that the delay time would be reduced, maybe even to zero. However, now The Law of Unintended Consequences comes into play. This Law predicts if we build the fly-over, the increased traffic will make its presence felt along the main roads on the Cape, and produce more or greater traffic jams in other places. There will then be demands to widen other roads. Road maintenance will become a larger item in already crowded town budgets. This process will continue until even the most devoted automobile drivers will say, "Stop". Unfortunately, when such a point is reached the Cape as a place to visit or live in will probably have been ruined beyond repair. It is our duty *now* to try to stop this degrading process.

I suggest that, just as for similar reasons we have stopped, for the time being at least, the double-barreling of the Mid Cape Highway east of Route 124, let us say "No" to the Sagamore Rotary fly-over, or to any other proposal which will bring more automobiles onto the Cape.

Yours Sincerely

Francis Worrell

P.S. I have sent essentially this letter to C.C. Times
P.O.

Subject: Cape Cod transportation suggestions
Date: Sat, 04 Nov 2000 10:16:18 -0500
From: "Stephan Cohen" <slcohen@capecod.net>
To: trans@capecodcommission.org

To the Commission regarding transit on the Cape

Cape Cod used to have a decent rail system. Every effort should be made to rebuild the rail infrastructure. Falmouth still has a rail line which could serve as a link to Boston. Provincetown had rail service until the 1950s. Rather than convert rail rights of way into bicycle and exercise paths, I would support investment in rail AND streetcar service. A streetcar line from Provincetown to Eastham would be an ideal method of transportation, particularly for tourists visiting the Cape. Unfortunately, these rights of way have been converted and infringed upon by private building. WE SHOULD PRESERVE EXISTING RAIL LINES, restore rail service to Hyannis, and create a high speed train between Boston and Hyannis, with consideration given to extending the line to Provincetown. A fast train from Boston to Sandwich could make the trip in 30 minutes or less. French trains currently run at 186 mph. While I don't actually expect a Boston Provincetown rail trip of 45 minutes, the technology exists and is used in Europe.
http://www.railway-technology.com/projects/frenchtgv/

Building wider roads, more bridges, and adding pavement will only add to the car congestion problem. Rather than encourage private vehicles, let's discourage them. Traffic jams on the bridges serve as a deterrent to additional cars. And these cars, particularly the Sports Futility Vehicles, diminish the quality of life for cyclists, pedestrians and even other car drivers. If these drivers insist on coming, give them an incentive to use cheap long term parking, perhaps charging $20 for daily parking, while allowing long term parking for FREE.

Ferry service should be supported.

Bus service is also helpful, both reducing traffic and offering transportation alternatives. The Ptown/Truro loop serves non-drivers (children, seniors) and those who prefer not to drive.

Show leadership, creativity and raise ideas for long-term solutions such as rail.

DO NOT encourage additional vehicle traffic to the Cape.

Sincerely,
Stephan Cohen
24 Pleasant St.
Provincetown, MA 02657

John McHale
30 Johnson Lane
West Yarmouth, MA. 02673
12/04/00

DEC 5 2000

Lev A. Malakhoff
Cape Cod Commission
3225 Main St.
Barnstable, MA. 02630

Mr. Malakhoff -

At 5:32 this morning I was awakened by an aircraft flying low and loudly over my neighborhood which lies away from any designated flight path more than three miles from Barnstable Municipal Airport. After the first aircraft flew over, at least twenty more followed by 7:00 A.M.

What has occurred over my neighborhood during the last year is a virtual explosion of air traffic that has seriously eroded the quality of life for me and for my neighbors. In effect, Barnstable Municipal Airport has created a "highway in the sky" that cuts directly over much of my community.

I understand from the meeting held at Yarmouth Town Hall on November 13, that the Regional Transportation Plan will not consider air traffic. However, I am writing to state that, should this change, any Cape Cod transportation policy needs to include the following:

- A comprehensive assessment of the uses of Barnstable Municipal Airport;
- A study of the impact of air traffic on the Town of Yarmouth.

Sincerely,

John McHale

HELP

Hellow fellow policiations we need to investigate Cape Cod R.T.A. We need more fixed routes on the cape. we need to dump them where we need them to run. We need to have major improvements in service on the H20 lime and Sealime. The town of Yarmouthn needs a bus to looup the town So these people can get tothe H20 lime. People in Chatham have been against improvements for at least 5 years

The peple who feel this way should sell their houses this would put more houses on the market and housing priceswould fall and our housing problem would not be as bad

Stevem A Egli

PS If Cape Cod RTA Take's Government money. does This mean have to Take everyone Even the Restaurant Dinner Shift people who Need to go home around 1830 pm or 12 am Because we don't have Access to the T like other communities

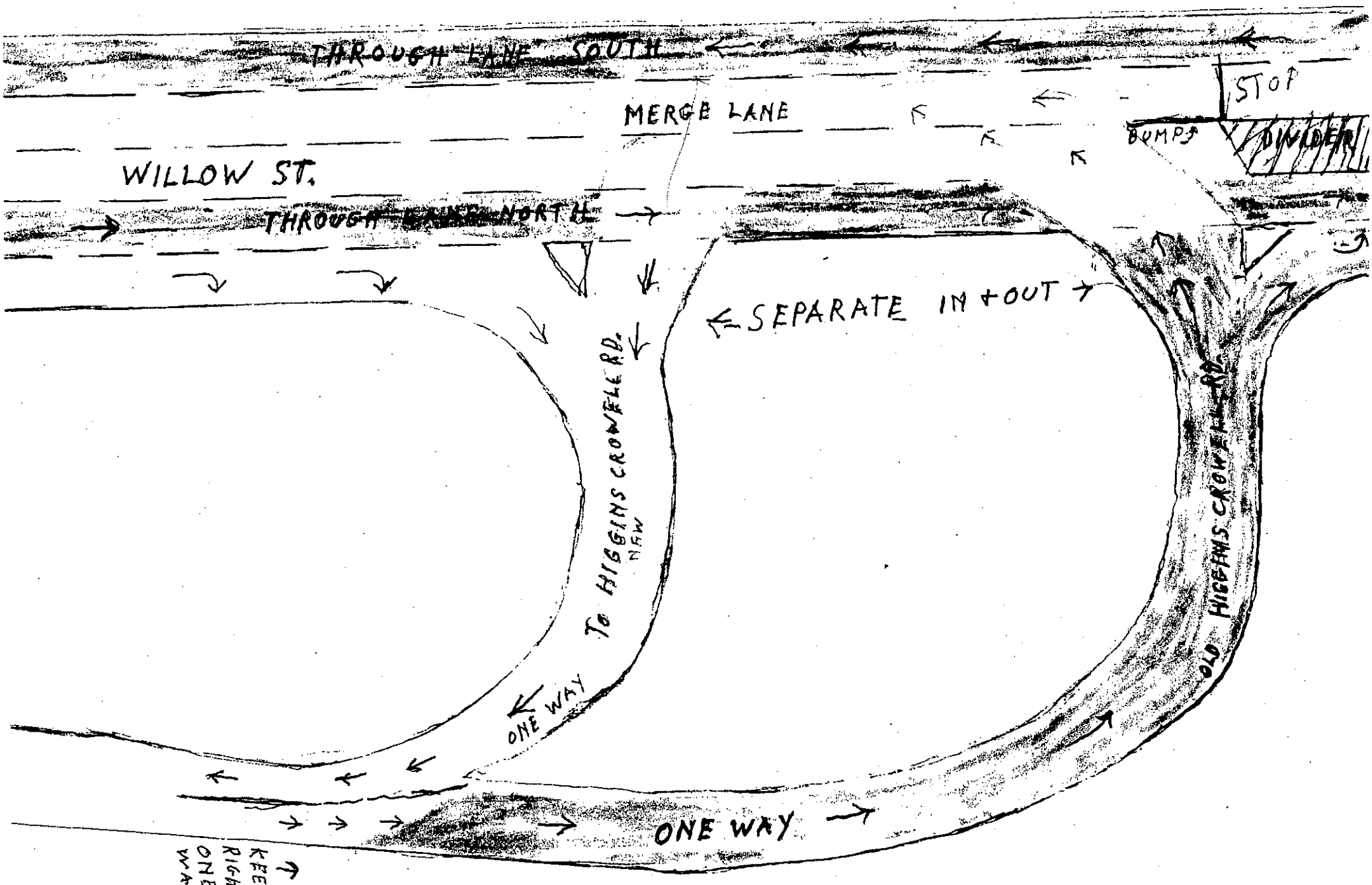
some other Facts you should know Cape Cod RTA In the Town of Yarmouth they Run 24 Buses past Salty's Dinner a day I know this because I was there when some one from the RTA was asking would you like to Advertise on our Buses

Some one Need to be put into Run The Cape cod RTA suggestions Ide like to see is for the Town of Yarmouth To have That Loops the city Another Opion is having The B Bus Take people from Home to The H20 line or Sealine in Stead of Door to Door

I feel we Need to Have at Least 10 Runs a day on both the Sealine and H20 line between 6 am and 6 pm. I feel we meed to do it this way because it is more of a fair thing to do so all Towns on the Cape can have the same number of Trips to Hyannis The Cape Cod Rta has always wanted to be Fair to It's customers but a growing Population wants for than One Round Trips a day Thus why We Need The Fixed Routes

Steven a Egli

#1


THROUGH LANE SOUTH
MERGE LANE
STOP
BUMPS
DIVIDER
WILLOW ST.
THROUGH LANE NORTH
SEPARATE IN + OUT
To HIGGINS CROWELL RD. NEW
ONE WAY
OLD HIGGINS CROWELL RD.
ONE WAY
KEEP RIGHT ONE WAY

John Warren
Eldredge
398-9446
S. Dennis

#2

RT 6 EAST

OFF RAMP FROM RT. 6

TO RT 6 EAST

SEPARATE IN AND OUT

WILLOW ST.

NORTH THROUGH LANE

MERGE LANE

DIVIDER

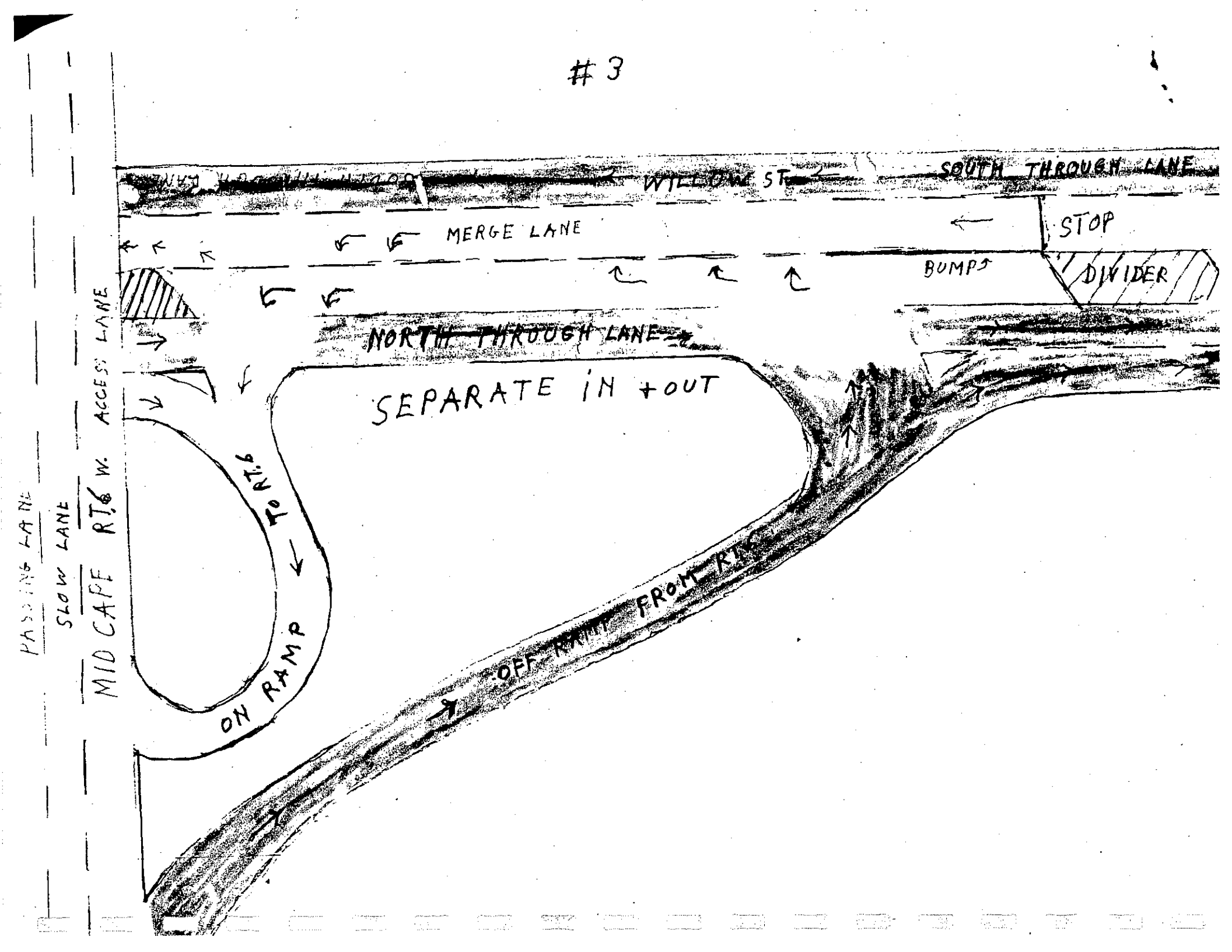
SOUTH THROUGH LANE

BUMP

STOP

GRASS

#3


WILLOW ST
SOUTH THROUGH LANE
MERGE LANE
STOP
BUMPS
DIVIDER
NORTH THROUGH LANE
SEPARATE IN + OUT
TO RT. 6
ON RAMP
OFF RAMP FROM RT. 6
MID CAPE RT. 6 W.
SLOW LANE
ACCESS LANE
PASSING LANE

Cape Cod Commission Transportation Survey • 1999 - 2000

Help the Cape Cod Commission update its Regional Transportation Plan by completing this survey

Where - or what - are the worst transportation problems on Cape Cod?

Town	Location or Description	When does the problem occur? Year-round	When does the problem occur? Summer	What type of problem is it? Congestion	What type of problem is it? Safety	What type of problem is it? Lack of Service
		☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐
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		☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐

PLEASE TURN TO OTHER SIDE

Results of this survey will be posted on the Cape Cod Commission's Transportation Website: **www.gocapecod.org**

How would you address transportation problems on Cape Cod?

(please rank with your 1st choice receiving a "1"; your last choice receiving a "7")

☐	Widen roads and intersections
☐	Build new roads
☐	Improve non-car transportation such as bus, ferry, bike paths, etc.
☐	Limit new construction
☐	Buy land for conservation
☐	Do nothing
☐	Other (please explain):

Would you support increased taxes to pay for transportation improvements and new transportation services?

Yes ☐ No ☐

Do you think "congestion relief pricing" should be considered as a way to help manage traffic flow and raise funds for transportation?

(Note: Congestion relief pricing includes "cashless" electronic tolls that do not impede traffic flow. Toll amounts would vary by time of day or day of week and may include residential exemptions or free travel periods).

Yes ☐ No ☐

Comments:

Optional (will be kept confidential):

Name	
Street	
Town & Zip	
Telephone	

please complete both sides Please drop in the box or mail to: Cape Cod Commission, P.O. Box 226, Barnstable MA 02630

Codes used for RTP Survey

D ..... Received at May mtg. in Dennis
E ..... Received at May mtg. in Eastham
F ..... Received at May mtg. in Falmouth

O ..... Received at November mtg. in Orleans
B ..... Received at November mtg. in Barnstable
S ..... Received at November mtg. in Sandwich

H ..... Delivered by Hand
M ..... Delivered by Mail
X ..... Delivered by Fax

CCC ..... Cape Cod Commission Staff
St ..... Sandwich High School Students

Cape Cod 2000 Regional Transportation Plan Survey - Results Listing

index		problems?	Addressing Transportation Problems: Widen/New Roads	Alt Modes	Limit	Buy Land	Nothing	Other		Support by Taxes/Pricing		comments?	i.d.
1	X01	Yes	6	5	1	4	2	3		No	No	Yes	Yes
2	St01	Yes	4	6	3	2	1	7	5	Yes	Yes	Yes	No
3	St03	Yes	1	2	3	5	6	7	4	Yes	Yes	No	No
4	St04	Yes	4	3	1	5	6	7	2	Yes	Yes	No	No
5	St05	Yes	3	1	4	2	2	5		No	Yes	Yes	No
6	St06	Yes	1	3	2	4	5	6			Yes	No	No
7	St07	Yes	5	1	2	3	4	6	7	Yes	Yes	No	No
8	St08	Yes	1	2	4	3	2	7	6	Yes	Yes	Yes	No
9	St09	Yes	1	2	3	5	6	7	4	Yes	Yes	No	No
10	S01	Yes								Yes	Yes	Yes	Yes
11	S02	Yes	X	X	X	X	X			Yes	Yes	No	No
12	S03	No								Yes	Yes	No	No
13	S04	Yes	2	5	1	4	3	7		Yes	Yes	Yes	Yes
14	S05	No	5	3	4	1	2	6	7	No	Yes	No	Yes
15	S06	Yes	1	2		3				Yes	Yes	Yes	Yes
16	S07	Yes	1	1	6	7	5	7		No		No	No
17	S08											No	No
18	S09	Yes	6	6	1	4	1	X		Yes	No	No	Yes
19	S10	Yes								Yes	No	Yes	Yes
20	S11	No			1				1	No	No	Yes	No
21	S12	No	7	6	4	1	3	2		No	No	Yes	No
22	O01	Yes	4	7	5	1	2	7		Yes		Yes	No
23	O02	Yes	1	4	2	5	3			Yes	No	No	No
24	O03	Yes	2	4	1	5	3	7	6	Yes	No	Yes	Yes
25	O04	Yes	6	7	2	4	1	5	3	Yes	No	No	Yes

Cape Cod 2000 Regional Transportation Plan Survey - Results Listing

index		problems?	Addressing Transportation Problems Widen/New Roads/ Alt Modes/ Limit / Buy Land / Nothing / Other							Support by Taxes/Pricing		comments?	i.d.
26	O05	Yes	5	4	2	1	3			Yes	Yes	Yes	No
27	O06	Yes			1	3	2		4	Yes	Yes	Yes	Yes
28	O07	Yes	4	7	1	5	3	6	2	Yes	Yes	Yes	Yes
29	O08	Yes	7		2	3	1			Yes	Yes	No	Yes
30	O09	Yes	1	5	2	4	3	6	7	Yes	Yes	Yes	No
31	O10	Yes	2	5	1	4	3	6	7	Yes	Yes	No	No
32	O11	Yes	3	5	1	3	4	6	7	Yes	Yes	Yes	Yes
33	O12	Yes	7	7	1	1	1	7		Yes	Yes	Yes	No
34	O13	Yes	6	7	3	2	1	5	4	Yes	Yes	Yes	Yes
35	O14	Yes			X					No	Yes	No	Yes
36	O15	Yes			1					??	??	Yes	Yes
37	M01	Yes	X		X						Yes	Yes	Yes
38	M02	Yes	2	3	1	4	5	6		Yes	No	Yes	Yes
39	M03	Yes			X							Yes	No
40	M05	Yes	5	4	1	2	3	6		Yes	Yes	No	No
41	M06	Yes	6	5	2	3	1	4		Yes	Yes	No	No
42	M07	Yes			X					No	Yes	Yes	No
43	M08	Yes	5	6	3	1	2	7	4	No	Yes	Yes	Yes
44	M09	No	X	X		2	1			Yes	Yes	Yes	Yes
45	M10	Yes	7	7	2	7	1	1	X	No	Yes	Yes	Yes
46	M11	Yes			1	3	2			Yes		No	Yes
47	M12	Yes	4	7	1	2	3	7		No	Yes	Yes	No
48	M13	Yes			1	3	2		4	No	Yes	Yes	Yes
49	M14	Yes	6	7	1	4	5	3	2	Yes	No	Yes	Yes
50	M15	Yes			1	3	2		X	Yes	Yes	Yes	Yes

Cape Cod 2000 Regional Transportation Plan Survey - Results Listing

index		problems?	Addressing Transportation Problems: Widen/New Roads/ Alt Modes/ Limit / Buy Land / Nothing / Other							Support by Taxes/Pricing		comments?	i.d.
51	M16	Yes			X	X	X			Yes	No	No	No
52	M17	Yes	1	2	4	3	5	6		No	Yes	No	No
53	M18	Yes	6	7	3	2	1	5	4	No	No	Yes	No
54	M19	Yes		7	3	2	1	7		Yes		Yes	Yes
55	M20	Yes	3	5	2	4	1	6		Yes	No	Yes	Yes
56	M21	Yes	4	6	1		2	5	3	Yes	No	Yes	Yes
57	M22	Yes	4	7	5	2	1	6	3	??	Yes	Yes	Yes
58	M23	Yes	X		1	3	4		2	No	Yes	Yes	No
59	M24	Yes	5	6	2	3	4	7	1	Yes	Yes	Yes	Yes
60	M25	Yes	X	X	3	1	4	4		Yes	??	No	No
61	M26	Yes	X	X	3	2	1	4	X	Yes	Yes	Yes	Yes
62	M27	Yes	1	2	6	6	6	6	1	No	No	No	Yes
63	M28	Yes	X	X	X		X			No	No	Yes	No
64	M29	Yes	7	7	1	5	1			Yes	No	Yes	No
65	M30	Yes	7	7	1	3	1		X	Yes	No	Yes	No
66	M31	Yes	7	7	1	2	1			Yes	No	Yes	No
67	M32	Yes	7	7	1	1	1		X	Yes	No	Yes	No
68	M33	Yes	X	X	X	X	X		X	Yes	No	No	Yes
69	M34	Yes	6	7	1	1	1	7	1	Yes	No	Yes	Yes
70	M35	Yes	4	5	1	2	3	6	2	No	Yes	Yes	Yes
71	M36	Yes	2	7	1	3	4	5	6	Yes	??	Yes	Yes
72	M37	Yes	4	5	2	3	7	6	1	No	No	Yes	Yes
73	M38	Yes	5	7	2	3	4	6	1	No	No	Yes	Yes
74	M39	Yes	4	5	2	3	6	7	1	No	No	Yes	Yes
75	M40	Yes	4	6	2	7	3	5	X	No	No	Yes	Yes

Cape Cod 2000 Regional Transportation Plan Survey - Results Listing

index		problems?	Addressing Transportation Problems: Widen/New Roads	Alt Modes	Limit	Buy Land	Nothing	Other		Support by Taxes/Pricing		comments?	i.d.
76	M41	Yes	X		X	X	X		X	Yes	Yes	Yes	Yes
77	M42	Yes	6	5	2	4	3	7	1	No	Yes	Yes	Yes
78	M43	Yes	7	6	4	5	3	1	2	No	Yes	Yes	Yes
79	M44	Yes	4	7	2	5	3	6	1	No	No	Yes	No
80	M45	Yes	4	5	2	1	6	7	3	No	No	Yes	Yes
81	M46	Yes	4	5	1	3	2			Yes	Yes	Yes	Yes
82	M47	Yes	4	6	1	3	2	5		Yes	Yes	Yes	Yes
83	M48	Yes	X	7	2	X	1	7	X	No	No	Yes	No
84	M49	Yes			X				X	Yes	No	Yes	No
85	M50	Yes	5	6	2	3	4	7	X	Yes	No	Yes	Yes
86	M51	Yes	5	6	1	3	4	7	2	Yes	No	Yes	Yes
87	M52	Yes	X	X	X	2	1			No	No	Yes	Yes
88	M53	Yes							X	Yes	No	Yes	Yes
89	M54	Yes	3	4	2	6	5	7	1	Yes	No	Yes	No
90	M55	Yes	X						X	No	No	Yes	Yes
91	H01	No	3	5	4	1	2		6	No	Yes	Yes	Yes
92	H02	Yes	X	X	1	3	2	4	X	Yes	??	Yes	Yes
93	F01	Yes	7	7	1	1	1	7	1	Yes		No	No
94	F02	Yes	X	X	3	1	2	X	4	Yes	??	No	No
95	F03	No			2	3	1	4				No	No
96	F04	Yes	6	7	1	3	2	5	4	Yes	Yes	Yes	Yes
97	F05	No	2	5	1	4	3	6		Yes	Yes	Yes	Yes
98	F06	Yes	6	5	1	4	2	3		Yes	No	Yes	No
99	F07	Yes	6	7	2	5	4	3	1	No	No	No	No
100	F08	Yes	4	5	1	3	2			Yes	No	Yes	Yes

Cape Cod 2000 Regional Transportation Plan Survey - Results Listing

index		problems?	Addressing Transportation Problems: Widen/New Roads	Alt Modes	Limit	Buy Land	Nothing	Other		Support by Taxes/Pricing		comments?	i.d.
101	F09	Yes	4	5	1	3	2			Yes	No	Yes	Yes
102	F10	Yes	6	7	3	2	1	4	5	Yes	Yes	Yes	No
103	F11	Yes							X	Yes	Yes	Yes	Yes
104	F12	Yes	4	5	3	2	1	6		Yes	Yes	No	No
105	F13	Yes	7	7	1	4	1	7	1		Yes	Yes	Yes
106	F14	Yes	7	7	1	7	1	4	1	Yes	Yes	Yes	Yes
107	F15	Yes	5	6	3	2	1	4		Yes	Yes	Yes	No
108	F16	Yes	X	X	1	3	2	4		Yes	Yes	Yes	No
109	F17	Yes	6	7	1	2	3			Yes		No	No
110	F18	Yes	2	7	1	5	3	6	4	Yes		Yes	Yes
111	F19	Yes	6	7	1	3	2			Yes	No	No	No
112	F20	Yes			X				1	Yes	No	Yes	Yes
113	E01	Yes	3	4	1	5	6	7	2	No	Yes	No	No
114	E02	Yes			X		X		X	Yes	??	Yes	Yes
115	E03	Yes	6	7	3	1	2	4	5	No	Yes	Yes	Yes
116	E04	No	5	6	2	1	3	4	7	Yes	Yes	No	Yes
117	E05	Yes	5	6	1	3	2	4	7	No	Yes	No	Yes
118	E06	No			X	X	X	X				No	No
119	D01	Yes	4	5	3	2	1	7		Yes	Yes	Yes	Yes
120	D02	Yes	7	6	4	1	2	5	3	No	No	Yes	Yes
121	D03	Yes	2		1			3		Yes	Yes	Yes	Yes
122	D04	Yes	X	X	X	X	X	X	X	Yes	Yes	Yes	Yes
123	D04	Yes	1	5	4	3	2			Yes	Yes	No	Yes
124	D05	No			1	2	3			Yes	Yes	Yes	Yes
125	CCC	Yes	7	7	1	1	1	7		No	No	Yes	No

Cape Cod 2000 Regional Transportation Plan Survey - Results Listing

		problems?	Addressing Transportation Problems							Support by		comments?	
index			Widen/New Roads/ Alt Modes/ Limit / Buy Land / Nothing / Other							Taxes/Pricing			i.d.
126	CCC	Yes	5	6	1	4	2	7	3	No	No	No	No
127	CCC	Yes	4	5	1	2	3			Yes	Yes	Yes	Yes
128	CCC	Yes	5	6	3	2	1	4		Yes	Yes	Yes	Yes
129	CCC	Yes				1	2	7		No	??	Yes	No
130	CCC	Yes	6	7	3	1	2	4	5	No	Yes	Yes	Yes
131	CCC	Yes			3	2	1			No	No	No	No
132	CCC	Yes	4	6	2	1	3	5	7	Yes	Yes	Yes	Yes
133	CCC	Yes	7	7	3	2	1	4	5	Yes	Yes	Yes	No
134	CCC	Yes	6	7	3	2	1		4	No	Yes	Yes	No
135	CCC	Yes	4	5	1	3	2	6	7	Yes	Yes	No	Yes
136	CCC	Yes	3	6	4	5	2	7	1	Yes	Yes	Yes	No
137	CCC	Yes			X	X	X			Yes	No	Yes	No
138	CCC	Yes	7	6	3	1	2	5	4	No	Yes	Yes	Yes
139	CCC	Yes	4	6	3	1	2	5		Yes	Yes	No	No
140	B01	No	6	7	1	3	2	5		No	Yes	No	No
141	B02	No	X	X	X	X	X	X	X	Yes	Yes	Yes	Yes
142	B03	No							X	No	Yes	Yes	Yes
143	B04	Yes		X				X				No	No
144	B05	No	3		1			2	1	No	No	Yes	Yes
145	B06	No	6	7	1	4	3	5	2	Yes	Yes	No	Yes
146	B07	Yes	1	5	3	4	2	6		Yes	No	Yes	No
147	B08	Yes			X					Yes	No	No	Yes
148	B09	Yes	5	6	1	2	3	4		Yes	No	No	No
149	B10	Yes	X	X	X	X			X	No	Yes	Yes	No
150	B11	Yes					X		X		Yes	Yes	Yes

Cape Cod 2000 Regional Transportation Plan Survey - Results Listing

index		problems?	Addressing Transportation Problems							Support by Taxes/Pricing		comments?	i.d.
			Widen/New Roads/	Alt Modes/	Limit /	Buy Land /	Nothing /	Other					
151	B12	Yes							X	Yes	No	Yes	No
152	B13	Yes	4	5	1	2	3	6		No	Yes	No	Yes
153	B14	Yes	2	2						Yes	Yes	No	Yes
154	B15	Yes	6	7	3	1	2	4		No	Yes	No	No
155	B16	Yes	X	X	X	X	X			Yes	Yes	No	No
156	B17	Yes			X		X			No	No	Yes	No
157	B18	Yes	5	5	2	3	2	1	X	No	No	Yes	No
158	B19	Yes	X	X	1	X	2	4	3	Yes	No	Yes	No
159	B20	Yes							X	Yes	No	Yes	Yes
160	B21	Yes							X	No	No	No	Yes

Regional Transportation Plan Projects Detailed Descriptions

- Memos
- Air Quality Summaries

Detailed Project Descriptions

RTP# 900 **Resurfacing PROGRAM**

Description BUNDLED PROJECTS
Roadway Resurfacing & Rehabilitation

Score
-

Project I.D.

Annual Cost	$12,000,000	**RTP Projected Cost**	$255,750,000
Upfront Cost			

Project Status

The design concept and scope for individual rehabilitation projects have not been fully determined and will require further analysis.

Project Issues

No significant issues are anticipated in the implementation of this project.

Project Schedule

Projects will be developed over the 25 period covered by this Regional Transportation Plan and the annual expenditure of $17,000,000 represents the average over this 25 year period in year 2000 dollars.

This project includes the anticipated roadway maintenance projects over the next 25 years consistent with the pavement management systems developed by each town. Roadway maintenance costs are based on interviews with the 15 Cape Cod town roadway officials. $12 million would be required as a minimum to meet existing maintenance needs. $25 million would be required annually to meet desired maintenance goals. The $17,000,000 annual cost is the based on an average between the minimum and the desirable.

RTP# 901 Bridge PROGRAM

Description BUNDLED PROJECTS
Bridge Replacement/Reconstruction

Score -

Project I.D.

Annual Cost	$2,400,000	**RTP Projected Cost**	$51,150,000
Upfront Cost			

Project Schedule Ongoing

Project Status

The ongoing inspections by MassHighway will be reviewed locally to establish the priority of bridge projects and these needs will be addressed.

Project Issues

Rehabilitation of Cape Cod bridges which will include strategies ranging from replacement and reconstruction to minor maintenance and painting.

Based on MHD condition reports;

• More than 50% of the approximately 100 Cape bridges that were evaluated have AASHTO ratings of 50 or less indicating reconstruction is probably needed.

• Approximately 1/3 of the bridges on Cape Cod were built 150 years ago and have not had major reconstruction in 100 years; the average age is 59 years.

The estimated annual program is based on recent spending.

RTP# 902 Transit Operating PROGRAM

Description BUNDLED PROJECTS
Transit Operating Assistance

Score -

Project I.D.

Annual Cost	$6,665,000	**RTP Projected Cost**	$142,047,813
Upfront Cost			

Project Schedule Ongoing

Project Status

Funding has been provided by FTA section 5311, and 5307 for existing services and this is expected to continue. The Hyannis Intermodal Center is expected to begin construction in 2000. The CCRTA has submitted applications for funding of their proposed "smart card" program and implementation is expected in 2001.

A transit plan for the region involving CCRTA is expected to be developed in 2001/2002 which is expected to review the existing services and needs. Current needs are based on recent expenditures.

Project Issues

Site plan approval of the Hyannis Intermodal Center has been given, however the traffic signals on Route 28 are still waiting approval by MHD.

The operating costs include maintaining the existing CCRTA routes, The access to jobs program, additional operating costs for the Hyannis intermodal Center, and support of planned and existing ITS improvements.

Detailed Project Descriptions

RTP# 903 **Intersection PROGRAM**

Description BUNDLED PROJECTS
Intersection Improvements

Score -

Project I.D.

Annual Cost	$1,250,000	**RTP Projected Cost**	$26,640,625
Upfront Cost			

Project Schedule Ongoing

Project Status

Ongoing studies such as the Route 6 Outer Cape Improvement study are expected to generate a number of prioritized improvements. Additional needs will be identified through the TIP development process.

Project Issues

Intersection improvements are anticipated for a variety of reasons such as safety and congestion management. The annual figure is based on the improvement of 5 intersections per year at an average cost of $250,000 per intersection.

RTP# 904 **Bicycle/Pedestrian Projects PROGRAM**

Description BUNDLED PROJECTS - bicycle and/or pedestrian facilities and programs

Score -

Project I.D.

Annual Cost	$300,000	**RTP Projected Cost**	$6,393,750
Upfront Cost			

Project Schedule Ongoing

Project Status

For bike network links (bicycle pathes) see RTP#909

Project Issues

This project provides funding for unidentified and potential stand-alone projects. The objective is to create an area-wide transportation environment conducive to walking and cycling. This project is related to the creation of the path network described in RTP#909. The funding is expected to address bicycle and pedestrian needs over the next 25 years of the plan.

Detailed Project Descriptions

RTP# 905 Access Management PROGRAM

Score: -

Project I.D.:

Description Eligible for all state and local numbered routes. Curb cut consolidation, medians, other access improvements

Annual Cost	$100,000	**RTP Projected Cost**	$2,131,250
Upfront Cost			

Project Schedule: Ongoing

Project Status

Access management strategies were developed in the Route 6A Access Management Study. Implementation of the principals developed in the study are being required for traffic mitigation due to some Developments of Regional Impact (DRIs). Application of the strategies are anticipated for existing conditions.

Project Issues

Imposing change on existing access is difficult and despite some good candidates, such as Foster Square in Brewster, implementation is difficult.

Access management projects to improve flow in congested areas such as consolidation of curb cuts, and providing access from secondary roads rather than primary roads. The annual cost is based on one project per year at an average cost of $100,000.

RTP# 906 Transit Capital PROGRAM

Score: -

Project I.D.:

Description BUNDLED PROJECTS
Transit Capital Needs

Annual Cost	$1,800,000	**RTP Projected Cost**	$38,362,500
Upfront Cost			

Project Schedule: Ongoing

Project Status

A transit plan for the region involving CCRTA is expected to be developed in 2001/2002 which is expected to include a long term fleet and facilities capital plan. Current needs are based on recent expenditures.

Project Issues

The strategic plan for the CCRTA may call for more service and increase the capital needs. In anticipation of this, an additional RTP project (#1021) is proposed and is expected to include enough funding to meet the strategic plan recommendations.

The CCRTA Capital Needs provide for replacement of vehicles, and implementation of ITS programs.

RTP# 907 TDM/TSM PROGRAM

Description BUNDLED PROJECTS - Travel Demand Management/Transportation Systems Management projects

Score -

Project I.D.

Annual Cost	$500,000	**RTP Projected Cost**	$10,656,250
Upfront Cost			

Project Schedule Ongoing

Project Status

Examples of related activities are underway - Cape Cod Bike Week every Spring, the first Cape Cod Alternative Transportation Week took place June 2000. Coordination with CARAVAN for Falmouth Technology Park ongoing.

Project Issues

This category includes some projects falling under the Congestion Mitigation Air Quality (CMAQ) program. Some illustrative projects would include designating/funding a TDM Coordinator; expanding & marketing CARAVAN services throughout the Cape.

RTP# 908 New Ferry Service - PROGRAM

Description BUNDLED PROJECTS - Passenger ferries connecting Cape Cod harbors

Score -

Project I.D.

Annual Cost	$250,000	**RTP Projected Cost**	$5,328,125
Upfront Cost			

Project Schedule Ongoing

Project Status

•Cost information preliminary estimate

Project Issues

Landside access; alternatives during poor weather

The 1999 Cape Cod Marine Transportation study indicated interest in Hyannis as a ferry destination of travelers from the north (Boston etc.). Due to impractical transit times, the possibility of using Barnstable Harbor/shuttle buses should be explored. Northside access ports to be considered include Sandwich, Barnstable Harbor, Sesuit Harbor, Rock Harbor, Wellfleet Harbor, Truro, and Provincetown. Southside/Atlantic ports include Woods Hole, Falmouth Inner Harbor, Cotuit, Osterville, Hyannis, Bass River, Wychemere Harbor, Saquatucket Harbor, Stage Harbor, Pleasant Bay, and Town Cove.

RTP# 909 Regional Bike Network PROGRAM

Score: -

Project I.D.:

Description BUNDLED PROJECTS - Regional links of bicycle trails and inter-town paths

Annual Cost	$75,000	**RTP Projected Cost**	
Upfront Cost	$3,125,000		$4,262,500

Project Schedule

Project Status

Includes expansions of regional bike path network. The "Shining Sea" Bike Path has been approved for design by the Town of Falmouth however the use of the right of way has not been decided.

For Cape Cod Rail Trail Extenstions see RTP #1015. Also see RTP #904 for standalone pedestrian/bicycling BUNDLED projects

Project Issues

Annual cost to cover ongoing maintenance. Upfront cost to cover large Capital expenditure for construction

RTP# 1000 Cape Cod Rail Trail Bridges

Score: 65

Project I.D.: CCC006

Description Cape Cod Rail trail bridges over Route 6 in Harwich and Orleans

Annual Cost		**RTP Projected Cost**	
Upfront Cost	$3,081,000		$3,081,000

Project Schedule: Imminent

Project Status

This 100%-designed project is listed as an "Upcoming Project" in *MassHighway's Transportation Investment in Massachusetts Since 1991.*

Project is approved by MassHighway. Bids for the Harwich Bridge advertised10/21/2000. Construction scheduled to begin Spring 2000.

Project Issues

A high regional priority - provides key connections in bicycle transportation system.

The bridges are to be located in the towns of Harwich and Orleans. Both bridges are to be located at deficient sections of the Cape Cod Rail Trail. The bridge in Harwich will connect the Trail over U.S. Route 6, approximately 2,000 feet west of Route 124 (Exit 10). The bridge in Orleans will connect the Trail over U.S. Route 6, just west of the Eastham/Orleans Rotary where Routes 6A & 28 meet Route 6. Paved bike path connectors will join the proposed work with the existing trail segments in both towns. The Cape Cod Rail Trail is a major segment of Massachusetts State Bicycle Route 1.

Detailed Project Descriptions

RTP# 1001 Hyannis Intermodal Center - ph. 1

Score 49

Project I.D. 9606

Description Construction of facility for inter-city bus and rail operations with shuttles to airport & ferries, pedestrian links to downtown Hyannis.

Annual Cost		**RTP Projected Cost**
Upfront Cost	$5,500,000	$5,500,000

Project Schedule

Project Issues

Project Status

Planning ANALYSIS
• All benefits are estimates. Benefits are for first phase only.

RTP# 1002 Hyannis Intermodal Center - ph. 2+

Score 47

Project I.D.

Description Completion of facility for inter-city bus and rail operations with shuttles to airport & ferries, pedestrian links to downtown Hyannis.

Annual Cost		**RTP Projected Cost**
Upfront Cost	$3,000,000	$3,000,000

Project Schedule

Project Issues

Project Status

Planning ANALYSIS

All benefits are estimates. Benefits are for remaining phases only (beyond phase 1).

RTP# 1003 Exit 6 1/2 - Hyannis Access

Description Barnstable - new interchange on Route 6 between exits 6 & 7 to improve access to downtown Hyannis

Score n/a

Project I.D.

Annual Cost		**RTP Projected Cost**
Upfront Cost	$15,000,000	$15,000,000

Project Schedule

Project Status

Currently undergoing review at MassHighway Environmental section.

Project Issues

Potential traffic impacts to Route 6A; Zoning/development potential & traffic impacts of parcels in the area of the proposed interchange.

The proposed interchange would create direct access to U.S. Route 6 from an Industrial Park on the south side (Independence Park). Alternatives include ramps which access the southern road network only as well as full access. Mary Dunn Road, which currently crosses under Route 6, is a candidate for some alternatives as the access road. Mary Dunn Road passes through a residential area to the north with access to Route 6A.

- For roadways from proposed interchange to Hyannis, land use issues to protect capacity
- Other projects as a group (RTP# 1001, 1002, 1012, 1022, 1023) may accomplish substantially the same goal

RTP# 1004 Southside Connector

Description Bourne/Sandwich - Construction of a new divided highway between the Bourne Rotary and Route 6 near interchange 2

Score n/a

Project I.D.

Annual Cost		**RTP Projected Cost**
Upfront Cost	$100,000,000	$100,000,000

Project Schedule

Analyis expected after December 2000

Project Status

Included in analysis for the Canal Area Transportation Study

Project Issues

The required right-of-way would use land on the Massachusetts Military Reservation (MMR). The MMR Community Working Group's Master Plan calls for conservation of this land as part of a nature refuge.

This project would consist of a 4-lane divided freeway connecting the Bourne Rotary to U.S. Route 6 in the vicinity of Interchange 2.

RTP# 1005 Nickerson Park Access from Route 6

Description Brewster - Direct access via new interchange to Nickerson Park from Route 6

Score
n/a

Project I.D.

Annual Cost		**RTP Projected Cost**
Upfront Cost	$15,000,000	$15,000,000

Project Schedule

Project Status

This project is not currently being studied.

Project Issues

Town of Brewster recreation fields are in close proximity to a potential interchange. Potential for cut-through traffic may require closure of through access to Route 6A.

Nickerson Park abuts the Route 6 right-of-way. A new interchange would relieve demand on the current park access road at Route 6A. Route 6A is a scenic byway and experiences heavy volumes and traffic conflicts on a narrow winding historic roadway.

An alternatives & feasibility analysis would be required.
From the Cape Cod Congestion Management System, Route 6 v/c: avg 0.86, max 1.10

Detailed Project Descriptions

RTP# 1006 Rt 28 MacArthur Boulevard Improvements*

Score 10

Project I.D.

Description Bourne - *Recommend MIS - - Construction of 2 new northbound lanes on Rt 28, reverse existing northbound, existing southbound becomes frontage road

Annual Cost		RTP Projected Cost
Upfront Cost	$10,000,000	$10,000,000

Project Status

Included in alternatives analysis of Canal Area Transportation Study.

Project Issues

Potential conflicts with road and land use proposals near the Bourne Rotary

Project Schedule

Analysis results expected after December 2000.

This project would include the construction of 2 new lanes of Route 28 separtated by a vegetated median from the existing northbound lanes. These new lanes would be used for Route 28 northbound travel. The existing northbound lanes would be redesignated for southbound travel. The existing southbound lanes would be redesignated/restriped for two-way travel as a frontage road to serve existing development.

Detailed study of U-turns & access points would be needed.
• Compatibility with goals must be reexamined; air quality to be reanalyzed as final concepts are developed.

RTP# 1008 Rt 6 Reconfigure Interchange One

Score 51

Project I.D.

Description Improve westbound on-ramp near Sagamore Bridge during peak times for off-cape traffic flow: Route 6, Exit 1: Reconfigure WB on-ramp

Annual Cost	$50,000	RTP Projected Cost
Upfront Cost		$1,250,000

Project Status

Alternatives are being evaluated as part of the Canal Area study.

Project Issues

A detailed description of a preferred alternative will be developed by the Canal Area study, if appropriate.

Project Schedule

Per Canal Area study: after December 2000.

Route 6A and 130 are used to bypass traffic backups on Route 6, westbound. The bypass traffic reenters route 6 at the WB onramp at exit 1. The bypass traffic often overloads the capacity of the onramp and impedes flow on Route 6 as well as creating gridlock in a large portion of Sandwich.

The proposed project could include a number of alternatives such as ramp metering, or temporary closures.

RTP# 1009 Sagamore Rotary Reconfiguration

Score n/a

Project I.D.

Description Reconfiguration of Sagamore Rotary to allow traffic between Rt 3 and Sagamore Bridge to pass over or under the existing rotary

Annual Cost		**RTP Projected Cost**
Upfront Cost	$30,000,000	$30,000,000

Project Status

Currently being studied by the CCC. A previous study was done by Rizzo and Associtates and the CCC study is expanding on their findings as well as providing lower cost alternatives. The study has identified some lower cost reconfigurations of the existing rotary that will improve flow and may be an interim solution to the flyover.

Project Issues

Currently there is $30,000,000 provided in the 1996 Transportation Bond Bill for a high-speed flyover. The impacts and alternatives to this project are being explored by the Canal Area Study expected to be complete in September 2000.

Project Schedule

Project recommendations are expected in September 2000.

RTP# 1010 Bourne Rotary Reconfiguration

Score n/a

Project I.D.

Description Bourne - reconfigure Bourne rotary to allow traffic between Bourne Bridge to Route 28 (MacArthur Blvd)

Annual Cost		**RTP Projected Cost**
Upfront Cost	$30,000,000	$30,000,000

Project Status

Options are currently being studied by the CCC. The study has identified some lower cost reconfiguration potions for the existing rotary that will improve flow and may be an interim solution to higher cost alternatives such as a flyover.

Project Issues

Reconfiguration of the Bourne rotary to improve traffic flow between the Bourne Bridge and Route 28 (MacArthur Blvd.).

Project Schedule

The Canal Area Study is expected to be complete in September 2000 and recommendations will be made at that time.

RTP# 1012 Rt 132 Boulevard

Description Barnstable - Construction of 2 new lanes from Rt 6 to Bearses Way (incl. landscaped median divider)

Score 22

Project I.D.

Annual Cost		RTP Projected Cost
Upfront Cost	$7,500,000	$7,500,000

Project Schedule

Project Status

Under design by EarthTech for the Town of Barnstable

Project Issues

This project would convert an existing 2-lane road into a 4-lane roadway with median divider.

Conduct preliminary analysis. Could be compatible with appropriate design & conditions.
•Assumes improved transit & alt. mode travel

RTP# 1014 Cape Cod Rail Trail Resurface & Widen

Description Eastham to Dennis - Resurface and widen original rail trail from 8'-10'

Score 45

Project I.D.

Annual Cost		RTP Projected Cost
Upfront Cost	$3,000,000	$3,000,000

Project Schedule

Project Status

This project has been a priority for the region for many years and sections of the path are being resurfaced with local funds due to the hazardous conditions that have developed.

Project Issues

Resurfacing and widening of the 25 mile long Cape Cod Rail Trail. That runs from Route 134 in Yarmouth to Wellfleet. The existing path is in need of resurfacing and the congestion levels warrant the widening of the traveled way.

RTP# 1015 Cape Cod Rail Trail Extensions

Score 45

Project I.D.

Description Extend Cape Cod Rail Trail to Provincetown in the north, Hyannis (or Bourne) in the west

Annual Cost		**RTP Projected Cost**
Upfront Cost	$4,000,000	$4,000,000

Project Schedule

Project Status

Design required. Feasiblity study performed in 1994 by VHB regarding bike path sharing rail right-of-way from Dennis west to Sandwich/Bourne.

Project Issues

The right of way must be dedicated to the project.

Extend the Cape Cod Rail trail approximately 29 miles for a total length of 54 miles. This would connect Provincetown with Hyannis

RTP# 1016 Rt 28 Bike Accomodation: Hyannis-Dennis

Score 38

Project I.D.

Description Construction, marking, and signage of Bicycle facility along Route 28 from Hyannis - Dennis

Annual Cost		**RTP Projected Cost**
Upfront Cost	$5,000,000	$5,000,000

Project Schedule

Project Status

Inactive

Project Issues

This project would accomodate bicycling along Route 28 in Hyannis, Yarmouth, and Dennis.

Review of Bicyclist accidents shows Rt 28 in Yarmouth as single highest section of road on Cape. Distances and land uses (motels & tourist based businesses) make biking a viable mode choice.

VMT/VHT/VOC/NOx reductions are preliminary estimates

RTP# 1021 Additional CCRTA Service PROGRAM

Description Public transit shuttle connecting villages along Route 6A from Sandwich to Orleans and other services

Score -

Project I.D.

Annual Cost	$1,940,000	**RTP Projected Cost**	$41,346,250
Upfront Cost			

Project Status

The transit plan for the CCRTA is not expected to be complete until 2001/2002 and implementation of recommendations for additional service will not be possible before then.

Project Issues

Project Schedule

New service is expected to be implemented in 2002

The new service is anticipated to replace service on 6A that was recently abandoned by Plymouth and Brockton, a private provider. The CCRTA is developing a strategic plan that may suggest other uses for this funding. The annual cost of $1,940,000 includes $440,000 in capital expenses and $1,500,000 in operating costs.

RTP# 1022 Transportation Management Center

Description Operations center to monitor traffic operations, issue real-time reports to traveling public, control variable message signs and coordinated traffic signals

Score 43

Project I.D.

Annual Cost		**RTP Projected Cost**	$6,450,000
Upfront Cost	$6,450,000		

Project Status

Ongoing discussions with CCRTA and other interested parties.

Project Issues

Project Schedule

This project is proposed for inclusion in the Hyannis Intermodal Center. Coordination elements include real-time traffic information from closed-loop traffic signal systems such as Routes 132/28 in Barnstable, SmarTraveler, CCRTA Automatic Vehicle Locator, and proposed Advanced Traffic Management Center for the new Yarmouth Police Station.

Includes the following modules:
1. Traveler information Center
2. Tourist information Center
3. Transit Management Center
4. Smart Card Settlement Center

Preliminary VMT/VHT/air quality analysis needs to be refined.

RTP# 1023 Variable Message Signs

Score 136

Project I.D.

Description Remote operated variable message signs installed along all major routes - Rt 6, Rt 28 in Bourne & Falmouth, Rt 25 Extension, Rt 3

Annual Cost	$10,000	**RTP Projected Cost**	
Upfront Cost	$1,000,000		$1,250,000

Project Schedule

Project Status

Related activities underway by other agencies include Variable Message Signs at locations managed by the Steamship Authority and the U.S. Army Corps of Engineers

Project Issues

Related to Barnstable 1997 CMAQ project "Hyannis Trans-Guide"

Install 10 permanent variable message signs and develop a central control location. The variable message signs will be located a key roadways to Cape Cod as well as locations on Cape. The signs will be used to advise traffic conditions, Steamship Authority parking availability, and notices associated with special events and emergencies.

RTP# 1024 Permanent Traffic Counting Stations

Score 350

Project I.D.

Description Install permanent traffic counting stations at strategic locations Cape-wide

Annual Cost	$1,000	**RTP Projected Cost**	
Upfront Cost	$175,000		$200,000

Project Schedule

Project Status

No design work has been done for this project.

Project Issues

Install detector loops at ten key locations on Cape Cod. The detectors will be capable of counting traffic as well as monitor traffic speed. The information will be remotely accessable for real time information to advise current traffic conditions.

Detailed Project Descriptions

RTP# 1025 Expand/enhance Exit 6 Park & Ride

Score 70

Project I.D.

Description Barnstable - Expansion of park&ride capacity at Interchange 6 Park & Ride. Add amenities such as bicycle lockers, indoor ticketing/waiting.

Annual Cost		RTP Projected Cost
Upfront Cost	$2,000,000	$2,000,000

Project Schedule

Project Status

The current park and ride lot reaches capacity by 8:00 am. Park and Ride enhancements completed in 1997 have been very successful in maintaing level of demand. No design work has been done for this project.

Project Issues

Add 200 spaces via a sructure over a portion of the existing lot and provide amenities such as bicycle lockers.

RTP# 1027 Interchange Improvements Rt 6

Score 3

Project I.D.

Description Mid-Cape Hwy - Implement improvements to Route 6 Interchanges

Annual Cost		RTP Projected Cost
Upfront Cost	$38,200,000	$38,200,000

Project Schedule

Project Status

Improvements to the portion of Route 6 between Dennis and Orleans have been contemplated for quite a while. Additional improvements are expected to be developed by the Route 6 Outer Cape study to be complete in late 2000. The RTP also recommends a study of the interchanges on Route 6 which will probably have additional safety recommendations.

Anticipated Projects:

Route 6	Dennis to Orleans $12,000,000
Outer Cape	$5,000,000
Exit 5 Improvements	$2,000,000
Exit 6 Improvements	$8,000,000
Additional I/C Imps	$10,000,000
Eastham Imps	$1,200,000

Project Issues

Implement improvements to Route 6 that preserve the character of the region while having a clear safety benefit.

RTP# 1030 Land Conservation

Description Strategic purchase of land to reduce sprawl and inefficient allocation of transportation resources

Score 19

Project I.D.

Annual Cost	$500,000	**RTP Projected Cost**	
Upfront Cost			$12,500,000

Project Schedule

Project Status

Analysis to be considered in Travel Demand Modeling

Project Issues

Conservation of key parcels would reduce future travel demand and eliminate future traffic conflicts.

Assumes $50 K /acre - 10 acres/yr

RTP# 1031 Cape-wide Highway Advisory Radio

Description Provide travel information cape-wide via AM radio

Score 520

Project I.D.

Annual Cost		**RTP Projected Cost**	
Upfront Cost	$250,000		$250,000

Project Schedule

Project Status

Inactive

Project Issues

To support Transportation Management Center

RTP# 1036 Harwich/Chatham Rail Trail Extension

Description Extend Cape Cod Rail Trail through Chatham

Score 183

Project I.D.

Annual Cost		**RTP Projected Cost**	
Upfront Cost	$985,000		$985,000

Project Schedule

Project Status

Harwich section complete.

Project Issues

funding & design for Chatham section...?

Using the existing Rail right-of-way, this project includes the construction of a bike path from the existing Rail Trail near Harwich Center to downtown Chatham. The section in Harwich has recently been completed.

RTP# 1037 **Rt 6 Eastham - Safety Improvements**

Description Eliminate conflict points along Route 6

Score 117

Project I.D.

Annual Cost		**RTP Projected Cost**
Upfront Cost	$1,200,000	$1,200,000

Project Schedule

Project Status

Project Issues

Printed: 1/10/2001

CAPE COD COMMISSION

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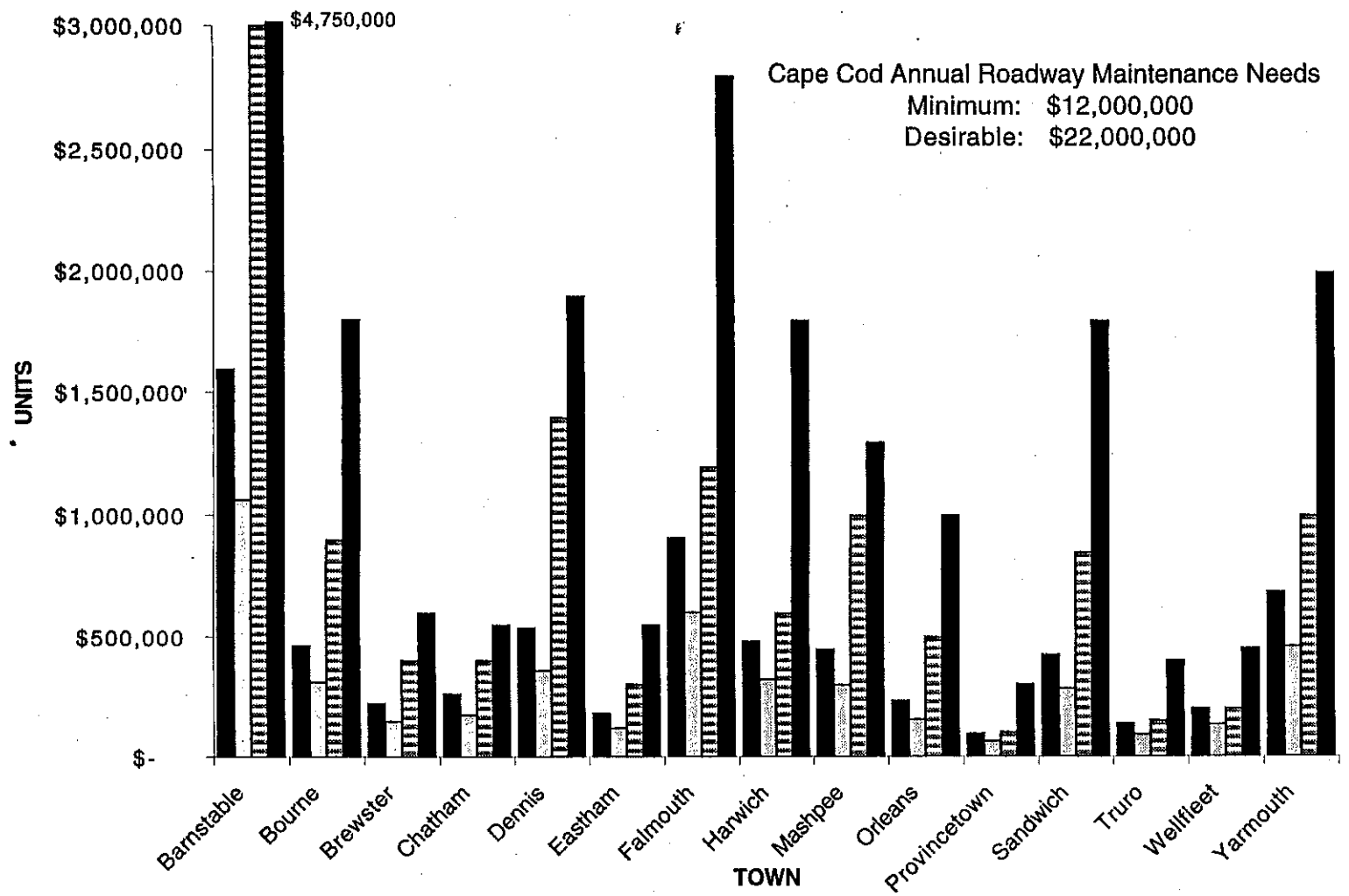
CAPE COD
TRANSPORTATION SYSTEM FUNDING NEEDS

1) Roadway Maintenance	$12 million
2) Transit	$ 9 million
3) Other projects	$10 million

$31 million annually

Draft for the Cape Cod Joint Transportation Committee
APRIL 2000

CAPE COD Chapter 90 Funding levels and Roadway Maintenance Needs



Chapter 90 @$100 million
for 15 towns on Cape Cod: $4,580,000

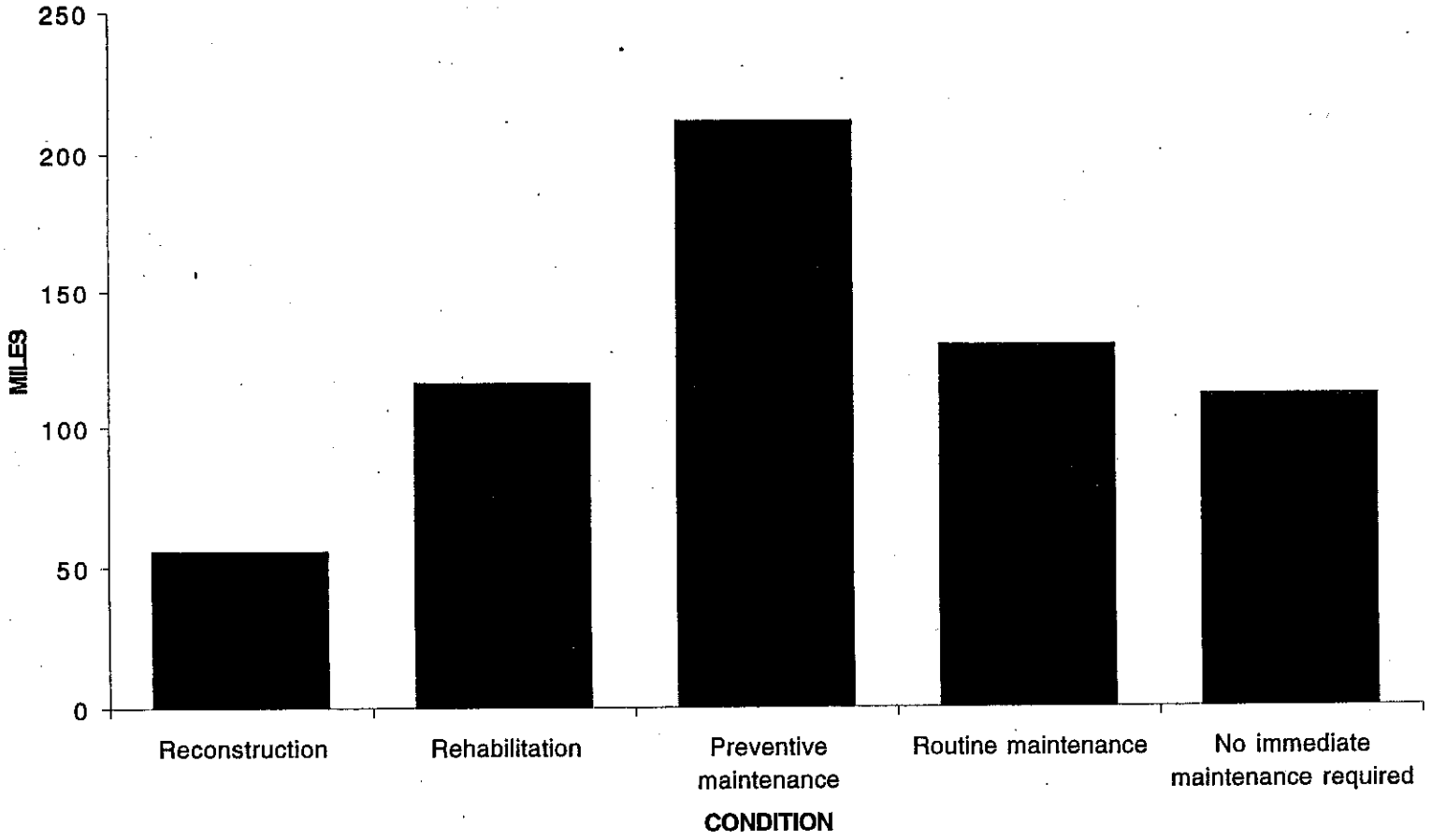
- State Aid Money (Chapter 90 @$150 million statewide), by Town
- State Aid Money (Chapter 90 @$100 million statewide), by Town
- MINIMUM annual needs estimate, roadway maintenance only
- DESIRABLE Annual needs estimate, roadway maintenance only

Data from: the 1996 Massachusetts Bond Bill for Chapter 90 @ $150 million statewide, estimated for $100 million statewide; annual needs estimate by survey March, April 2000.

prepared by the Cape Cod Commission, pl

CAPE COD
MILES OF FEDERAL AID ROADWAY by PAVEMENT CONDITION

On Cape Cod approximately 28% of total roadway miles are eligible for federal aid; the remaining 72% of roadway miles are the responsibility of the local level.



NOTE: VHB estimated the backlog under the "Equilibrium Maintenance Funding" scenario in 2000 to be $79,988,975. The overall Pavement Condition Index would remain in the seventies or eighties.

Data from the Roadway Management Study Barnstable County, December 1997, prepared by Vanasse Hangen Brustlin, Inc.

ANNUAL NEEDS for the CAPE COD TRANSIT SYSTEM

TYPE	CAPITAL	OPERATING	
vehicle purchases	$ 1,400,000		These vehicle purchases are for maintaining the existing fleet [local]
vehicles - new service	$ 440,000		One new regional service in five years - capital cost (purchase 2± vehicles per year)
existing routes, operating assistance		$ 2,560,000	from Federal Transit Administration (FTA) 5311 funding & state funding from the Executive Office of Transportation & Construction (EOTC)
existing routes, operating assistance		$ 3,600,000	from Federal Transit Administration (FTA) 5307 funding & state funding from the Executive Office of Transportation & Construction (EOTC)
operating-new service		$ 1,500,000	Annual operating cost of one new regional service: 35 miles one way, 15 min weekday frequency & hourly weekends
Access to Jobs		$ 105,000	Annual operating cost
ITC construction Phase II	$ 600,000		This includes $3 million for construction of Phase II of the Intermodal Transportation Center, over five years
ITC maintenance, ITS improvements, other	$ 400,000	$ 400,000	This includes ongoing maintenance for ITC (estimated at $200,000 per year); ITS improvements for transit including Smart Cards; and may include other capital costs.
	$ 2,840,000	$ 8,165,000	
TOTAL ANNUAL NEEDS	**$ 11,005,000**		
		$ 9,065,000	**Annual needs less the one new service in five years**

For long range planning purposes the annual needs are based on: five years of actual needs for vehicle replacements; other capital projects, such as Phase II of the Intermodal Transportation Center; and existing annual operating assistance. The "one new service in five years" is included as an example only and is not a service that is designed.

Cape Cod Projects

	EXAMPLES of projects included in the category "OTHER PROJECTS"				
SID	MUNICIPALITY	FACILITY	DESCRIPTION	Total Estimated Cost	TYPE
602309	DEM, Har, Orl, Cape	Route 6/Cape Cod Rail Trail	Phase I, HARWICH - CC Rail Trail BRIDGES /Rte 6	$620,000	BIKE
602309	DEM, Har, Orl, Cape	Route 6/Cape Cod Rail Trail	Phase II, ORLEANS - CC Rail Trail BRIDGES /Rte 6	$2,350,000	BIKE
601466	CHATHAM	Harw/Chat Rail Trail	Construct Chatham Section ($415,000 in 1994 Bond Bill)	$1,050,000	BIKE
	FALMOUTH	Shining Sea Bikeway, Phase III	Phase III, Skating Lane to Bourne Town Line	$3,000,000	BIKE
	DEM, Den--East	Cape Cod Rail Trail	Resurface & Intersection imprvmnts on Den-East section (19 mi)	$2,000,000	BIKE
1243	DEN /YAR /BARNS	Cape Cod Rail Trail, Den-Yar	Existing CCRT in DEN to the Transfer Station in YAR	$2,000,000	BIKE
1243	DEN /YAR /BARNS	Cape Cod Rail Trail, Den-Yar	Yarmouth Section Higgins Crowell Rd to Camp St	$200,000	BIKE
1243	DEN /YAR /BARNS	Cape Cod Rail Trail	PHASE III BarnsYar TL to Intermodal Ctr, Extension of CCRT	$1,000,000	BIKE
				$12,220,000	
602531	FALMOUTH	Meadow Neck Rd BRIDGE	Bridge replacement, BR #F-03-019	$500,000	BRIDGE
602293	HARWICH	Lower County Road Bridge	BR#H-10-1 Lower County Rd Bridge over the Herring River	$569,000	BRIDGE
	FALMOUTH	Eel Pond Bridge	Bridge #F-03-05, Bridge Replacement	$1,800,000	BRIDGE
				$2,869,000	
	FALMOUTH	Intersection Improvements	install signal pre-emption devices, seven intersections	$100,000	INTER
602480	BARNSTABLE	Intersection Improvemnts-Hyannis	Improvements @ North, Main & W. Main, & signal coord (6 int)	$500,000	INTER
	FALMOUTH	Route 151 @ Sam Turner Rd	Intersection Improvements	$240,000	INTER
	FALMOUTH	Ter Heun Dr @ Jones Rd	Intersection Improvements	$142,092	INTER
1329	MASHPEE	Rte 130 @Great Neck Road North	Intersection Improvement	$210,000	INTER
1328	MASHPEE	Quinaquissett Av@ Orchard Rd	Intersection Improvement	$35,000	INTER
1311	MASHPEE	Cotuit Rd @ Pimlico Pond	Intersection Improvement	$55,000	INTER
1290	FALMOUTH	Sandwich Rd @ Brick Kiln Road	Intersection Improvements	$100,000	INTER
602559	ORLEANS	Rte 6A @ West Rd/Eldridge Prkwy	Intersection reconstruction & traffic signal upgrade (Skaket C.)	$450,000	INTER
				$1,832,092	
601441	BARNSTABLE	Route 132	Widen (median boulevard) from Rt 6 to Bearses Way	$7,500,000	BEYOND
602511	TRURO	Route 6A	Resurfacing and related work	$1,200,000	BEYOND
	BARNSTABLE	Attucks Lane extension	Extension, from Airport Road to Airport Rotary	$2,500,000	BEYOND
	HARWICH	Route 28 Improvements	Add sidewalks, mitigate stormwater, bury overhead utilities	$2,480,000	BEYOND
				$13,680,000	
	CAPEWIDE	Traffic Monitoring system	12 locations for permanent trafficview equipment	$600,000	Managemen
	CAPEWIDE	Traffic Management Center	Traffic Mngmt Ctr/Intelligent Trans System Phase II	$800,000	Managemen
				$1,400,000	
	YARMOUTH	Highbank Road	pedestrian improvements, sidewalks	$250,000	PED
				$250,000	
601955	DENNIS	Route 6 @ Route 134, Exit 9	Full cloverleaf, Route 6 Interchange at Route 134 Dennis (Exit 9)	$3,038,500	Route 6
602520	EASTHAM & WELLFLEET	Route 6 Intersection Improvements	GovPmc, Samoset, Nauset, Salt Pond, Brckt/Old Col, Marconi Bch Rds	$400,000	Route 6
				$3,438,500	
	CCRTA, CAPEWIDE	Intermodal Transportation Center	Funds from FTA, EOTC, HPP	$7,800,000	TRANSIT
	CCRTA, CAPEWIDE	NEW SERVICE, capital start-up BUS	35 miles one way, 15 min weekdays; hourly weekends	$2,000,000	TRANSIT
	CCRTA, CAPEWIDE	NEW SERVICE, operating assistance	35 miles one way, 15 min weekdays; hourly weekends	$1,500,000	TRANSIT
	ORLEANS	Park and Ride Lot	Construction Park and Ride Lot	$330,000	TRANSIT
				$11,630,000	
	SANDWICH	Route 130 intersection imprvmnts	Town Hall Square section	$500,000	ENH
	CHATHAM	Streetscape Improvements Main St	Streetscape Improvements Main St	$1,089,000	ENH
	BARNSTABLE	Hyannis, from ITC to Harbor	Walkway to the Sea	$241,000	ENH
				$1,830,000	
				$49,149,592	TOTAL
			Annual amount to accomplish TOTAL in five years	$9,829,918	

This page includes federal aid and non federal aid Cape Cod projects from the TIP 2000-2005 endorsed August 1999.

Rural Roads Initiative

- Memorandum of Agreement

February 8, 2000

MEMORANDUM OF AGREEMENT
BETWEEN
THE MASSACHUSETTS HIGHWAY DEPARTMENT,
THE NATIONAL PARK SERVICE/CAPE COD NATIONAL SEASHORE,
THE CAPE COD COMMISSION,
THE MARTHA'S VINEYARD COMMISSION
AND
THE NANTUCKET PLANNING & ECONOMIC DEVELOPMENT COMMISSION

This Memorandum of Agreement is entered into by and between the Massachusetts Highway Department (hereinafter referred to as MassHighway), the National Park Service/Cape Cod National Seashore (hereinafter referred to as CCNS), Barnstable County through the Cape Cod Commission (hereinafter referred to as CCC), the Martha's Vineyard Commission (hereinafter referred to as MVC) and the Nantucket Planning & Economic Development Commission (hereinafter referred to as NP&EDC), for the purpose of developing recommended design guidelines for public road construction and/or reconstruction, including recommendations for traffic controls, which meet standards for public safety while preserving the unique quality of rural roadways. The recommended design guidelines may include a hierarchy of standards based on road traffic volumes and function. The parties to this agreement shall be known as the "Cape & Islands Rural Roads Group."

ARTICLE I. BACKGROUND AND OBJECTIVES

Cape Cod and the Islands of Martha's Vineyard and Nantucket are unique in terms of scenic and historic character and sensitive natural resources. Many of the transportation corridors in these areas evolved gradually from indian trails to horse paths to country lanes to modern day roads. Although this transformation was gradual at first, it has accelerated dramatically in the last 50 years.

These roads often do not meet the recommended design standards of today. While these roads may function well and may have acceptable safety records, they may lack paved shoulders or have narrower lane widths than recommended. For example, approximately two-thirds of the roads on Nantucket are unpaved. This creates problems when state and federal funds are sought for reconstruction. In order to be eligible for state and federal funding, roads in Massachusetts must be an eligible route

and conform to the Massachusetts Highway Design manual, which is based on national design guidelines. Certain roads in Massachusetts qualify for MassHighway's "Low Speed / Low Volume" design standards which were created for roads that carry a low level of traffic volume. In addition, waivers from MassHighway's design standards are granted on a case-by-case basis.

When attempting to conform with MassHighway's design standards, occasionally, there are environmentally sensitive areas that need to be avoided, minimized or mitigated. Other times there may be sensitive natural resources that would be harmed by road widening. Frequently, the public becomes skeptical of any changes to roads and intersections. Opposition often grows to the point where many road reconstruction projects are delayed for long periods of time or unable to proceed at all.

Recognizing this issue and the importance of resolving it, funds were appropriated in the Transportation Equity Act for the 21st Century (TEA-21), as a High Priority Project, to develop an alternative set of design guidelines for public roads on Cape Cod and the Islands which meet standards for public safety while preserving the unique quality of rural roadways. The guidelines developed by this joint effort could be applied to other rural roads across the Commonwealth. Similar to the MassHighway Design Manual, the recommended design guidelines may include a hierarchy of standards based on a road's traffic volumes and function.

1.A. Definition of the road system for the purposes of this effort

The scope of this effort includes all public roads and intersections on Cape Cod and the Islands. This includes all publicly owned or maintained local, county, state and federal roads and highways on Cape Cod and the Islands. Roads shall be interpreted broadly to include natural and man-made features within the right-of-way, including easements, as well as adjacent natural and man-made features. Intersections shall include public roads as well as private roads intersecting with a public road.

ARTICLE II. KEY WORK ELEMENTS

The key elements of this effort are:

- Review similar efforts and road designs in other states (Vermont and Washington State, for example) and possibly Canada (Nova Scotia, for example), as well as research previously conducted by the American Association of State Highway Transportation Officials (AASHTO) and the Transportation Research Board (TRB) on the subject of Alternative Design Standards and others.

- Review the work of Commissioner Matthew J. Amorello's Task Force on Roads in Historic and Rural Areas and coordinate efforts, as feasible.

- Coordinate with the Federal Highway Administration and the Federal Lands Highway office.

- Examine roads on Cape Cod and the Islands
  - collect data on safety, traffic volumes, user mix (cars, trucks, bicycles, pedestrians)
  - comparison with state and national accident rates
  - research and identify correlation between road design and safety
  - collect data on road dimensions, right of way and other road geometric data

- Identify and examine design constraints on Cape Cod and Islands roads
  - scenic, historic, environmental
  - community support, abutter concerns

- Develop case studies from local, state or national experiences

- Develop recommended design guidelines for Cape Cod and the Islands.

- Conduct public input and comment process
  - monthly or quarterly newsletter
  - periodic public meetings

- Prepare report/booklet/acceptance document

- Perform legal review, including legal guidance regarding the issue of liability in roadway design.

- Develop guidance for implementing recommended design guidelines

- Develop recommendations for next steps

ARTICLE III. PROJECT SCHEDULE

Task	Estimated completion date (# of months after Contract Start Date)
Develop work tasks for the participants and the consultants	2
Develop RFP(s) for Consulting Services	3
Issue RFP(s), review responses	5
Execute contract with consultant(s)	6
Review efforts of Commissioner Amorello's Task Force	7
Review efforts in other states, provinces, AASHTO and TRB	7
Field visit(s)	7
Examine roads on Cape Cod and the Islands	8
Identify and examine design constraints	9
Develop case studies	10
Perform safety analyses	10
Perform environmental and cost analyses	10
Issue draft recommended design guidelines	11
First round of public meetings	12
Revise recommended design guidelines	13
Issue revised recommended design guidelines	14
Second round of public meetings	15
End public comment period	16
Develop final recommended design guidelines	17
Issue final recommended design guidelines	18
Perform legal review	19
Prepare & issue report/booklet/acceptance document	20
Develop guidance for implementation	21
Recommend next steps	22 and beyond

ARTICLE IV. RESPONSIBILITIES OF THE PARTICIPANTS

A. The Massachusetts Highway Department agrees to:

- Assist in the development of necessary contract documents to access the funding provided by TEA-21.

- Provide state matching funds (not to exceed $93,750).

- Execute a contract between the Massachusetts Highway Department and the County of Barnstable through the Cape Cod Commission (as the lead agency) to perform this effort in coordination with the Cape Cod National Seashore, the Martha's Vineyard Commission and the Nantucket Planning & Economic Development Commission.

- Provide staff support to this effort.

- To the extent available and requested, provide copies of engineering plans for Cape and Islands roadways, including 100% design plans, to the lead agency and their consultants.

- Assist in the review and selection of consultants to perform portions of the work.

- Review and comment on findings and recommendations of the Cape & Islands Rural Roads Group.

- Consider the adoption and implementation of the recommended design guidelines developed for Cape Cod and the Islands.

B. The National Park Service agrees to:

- Provide Cape Cod National Seashore staff support to this effort.

- Assist in the review and selection of consultants to perform portions of the work.

- Review the findings and recommendations of the consultants regarding recommended design guidelines for roads within the Cape Cod National Seashore.

- Coordinate the review of road design guidelines proposed for Cape Cod and the Islands by Federal Lands Highway division of the Federal Highway Administration.

• Work with the Federal Lands Highway Division of the Federal Highway Administration to consider and implement the recommended guidelines.

Note: This agreement and the obligations of the Service hereunder shall be subject to the availability of funding, and nothing contained herein shall be construed as binding on the Service to expend in any one fiscal year any sum in excess of appropriations made by Congress or administratively allocated for the purpose of this Agreement for the fiscal year, or to involve the Service in any contract or other obligation for the further expenditure of money in excess of such appropriations or allocations.

C. The Cape Cod Commission agrees to:

• Provide CCC staff support to this effort.

• Take the lead role in developing contract documents, including the scope of work, a proposed budget and schedule, requests for proposals for consulting assistance and related materials.

• Assist in the review and selection of consultants to perform portions of the work.

• Take the lead role in coordinating the efforts performed by consultants.

• Take the lead role in coordinating public participation and obtaining comment from Cape Cod officials, including Boards of Selectmen, local Highway Departments and members of the Cape Cod MPO.

D. The Martha's Vineyard Commission agrees to:

• Take the lead role in coordinating public participation and obtaining comment and input on Martha's Vineyard.

• Assist the Cape Cod Commission in developing support documents and requests for consulting services.

• Assist in the review and selection of consultants to perform portions of the work.

• Assist in obtaining engineering plans and necessary data for roads on the Island.

E. The Nantucket Planning & Economic Development Commission agrees to:

- Take the lead role in coordinating public participation and obtaining comment and input on Nantucket.

- Assist the Cape Cod Commission in developing support documents and requests for consulting services.

- Assist in the review and selection of consultants to perform portions of the work.

- Assist in obtaining engineering plans and necessary data for roads on the Island.

F. The Federal Highway Administration agrees to:

- Provide staff guidance and support to this effort.

- Review materials developed in this effort and comment, as appropriate.

- Coordinate the review of recommended design guidelines for Cape Cod and the Islands with Federal Lands Highway division.

ARTICLE V. KEY PERSONNEL

The following parties shall assign appropriate representation to the Cape and Islands rural roads initiative:

National Park Service/Cape Cod National Seashore

Massachusetts Highway Department

Cape Cod Commission

Martha's Vineyard Commission

Nantucket Planning & Economic Development Commission

Federal Highway Administration

ARTICLE VI. TERM OF AGREEMENT

This AGREEMENT shall be effective when signed by all parties and shall remain in effect until its objectives are complete.

ARTICLE VII. SIGNATORIES

The parties to this agreement have caused this agreement to be signed by their respective authorized officers on the _____ day of _____ in the year _____.

NATIONAL PARK SERVICE

_____
Superintendent,
Cape Cod National Seashore

MASSACHUSETTS HIGHWAY DEPARTMENT

_____
(to be determined)

COUNTY OF BARNSTABLE/CAPE COD COMMISSION

_____ _____
Chairman, County Commissioners Executive Director, CCC

MARTHA'S VINEYARD COMMISSION

_____ _____
Chairman, MVC Executive Director, MVC

NANTUCKET PLANNING & ECONOMIC DEVELOPMENT COMMISSION

_____ _____
Chairman, NP&EDC Executive Director, NP&EDC

FEDERAL HIGHWAY ADMINISTRATION

_____

CAPE COD COMMISSION

3225 MAIN STREET
P.O. BOX 226
BARNSTABLE, MA 02630
(508) 362-3828
FAX (508) 362-3136
E-mail: frontdesk@capecodcommission.org

Cape and Islands Rural Roads Initiative

Scope of Work

February 8, 2000

The purpose of this effort is to develop and facilitate the implementation of road design guidelines for Cape Cod and the Islands of Martha's Vineyard and Nantucket. The project is a joint effort of the Massachusetts Highway Department, the Federal Highway Administration, the National Park Service/Cape Cod National Seashore, the Cape Cod Commission, the Nantucket Planning & Economic Development Commission and the Martha's Vineyard Commission. The accompanying Memorandum of Agreement contains additional information regarding the purpose of this project and the responsibilities of the participants.

This project is a High Priority Project (HPP) in the Transportation Equity Act for the 21st Century.

The scope of work is as follows:

Task 1: Development and refinement of work tasks to be completed by Regional Planning Agency (RPA) staff and through contractual services.

Task 2: Development of Requests for Proposals (RFPs) for consulting services.

Task 3: Issuance of RFPs and review of responses.

Task 4: Execution of contract(s) with Consultant(s).

Task 5: Review of similar efforts in Massachusetts and in other states and provinces.

Task 6: Field visits to review and document alternative road designs.

Task 7: Examination of Cape Cod and Islands roads to identify examples of various road designs and to identify candidates for case studies.

Task 8: Identification and examination of design constraints for Cape and Islands roads. These include environmental, historic and scenic constraints, right-of-way issues, community character and political issues.

Task 9: Development of case studies from Cape Cod and the Islands.

Task 10: Preparation of safety analyses. Determination of correlation between alternative road designs, vehicles speeds and safety for all users.

Task 11: Preparation of environmental and cost analyses, including benefits of reduction in stormwater runoff and costs savings related to reduced materials.

Task 12: Preparation and release of draft guidelines for review and comment.

Task 13: Revision of design guidelines based on comments.

Task 14: Issuance of revised design guidelines.

Task 15: Development of final design guidelines based on comments.

Task 16: Issuance of final design guidelines.

Task 17: Performance of legal review.

Task 18: Preparation and issuance of final reports and other materials.

Task 19: Development of guidance documents for implementation of design guidelines.

Task 20: Recommendations for next steps.

Task 21: Public meetings, presentations and public comment periods (starting month 12).

Task 22: Quarterly newsletter (approximately seven issues; starting month 3).

CAPE COD COMMISSION

3225 MAIN STREET
P.O. BOX 226
BARNSTABLE, MA 02630
(508) 362-3828
FAX (508) 362-3136
E-mail: frontdesk@capecodcommission.org

Rural Roads Initiative

Proposed Budget

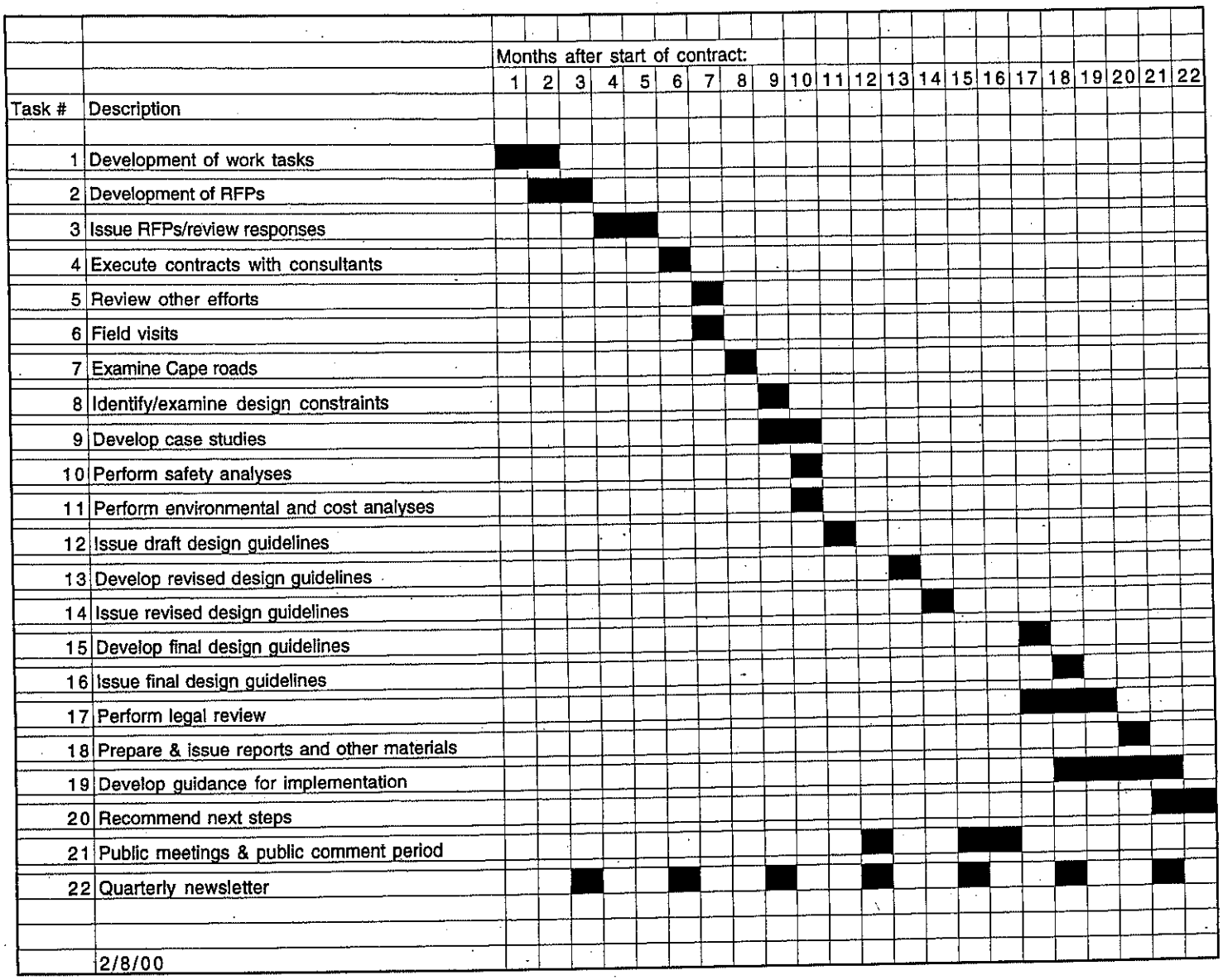
	Contract Year 1	Contract Year 2	Total
Direct labor (RPA staff salaries)	$25,000	$25,000	$50,000
Indirect Costs (based on CCC rate)	$28,000	$28,000	$56,000
Direct costs			
Contractual services	$159,375	$159,375	$318,750
Travel	$20,000	$2,000	$22,000
Other direct costs	$2,000	$20,000	$22,000
Total Budget	$234,375	$234,375	$468,750

Notes:
All contractual services for the project will be through the County of Barnstable/Cape Cod Commission.

Funds for direct labor, travel and other direct costs are expected to be apportioned between NP&EDC, MVC, CCNS/NPS and CCC

Cape and Islands Rural Roads Group

Project Schedule



Congestion Management System

Summaries
- Roadways
- Transit
- Park & Rides

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Bourne	Route 28	1	Northbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
6/1/1995	10:18 AM	50.9	6/7/1995	5:01 PM	49.6	6/26/1995	3:29 PM	52.6
7/10/1995	1:41 PM	51.8	7/11/1995	4:00 PM	54.5	7/12/1995	2:04 PM	50.6
7/13/1995	2:09 PM	48.8	7/13/1995	12:32 PM	48.2	6/10/1996	4:09 PM	48.7
6/20/1996	12:02 PM	52.7	6/24/1996	11:31 AM	51.1	7/10/1996	11:34 AM	52.5
7/15/1996	10:55 AM	49.5	7/24/1996	9:28 AM	52.0	7/30/1996	11:06 AM	50.5
8/8/1996	11:45 AM	52.1	8/15/1996	11:22 AM	54.6	8/19/1996	3:56 PM	50.6
6/2/1997	4:15 PM	54.0	6/4/1997	1:15 PM	43.5	6/11/1997	1:40 PM	69.9
7/2/1997	12:35 PM	54.2	7/7/1997	12:30 PM	62.8			

Sub Segment	Average Travel Time	Average Speed
Bour/Falm TL - Otis Rotary	02:16	53.9
Otis Rotary - Bourne Rotary	04:40	52.1

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Bourne	Route 28	2	Southbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/25/1988	11:45 AM	*	6/1/1995	9:11 AM	49.9	6/7/1995	2:33 PM	50.6
6/26/1995	3:42 PM	52.7	7/10/1995	2:10 PM	50.2	7/11/1995	4:10 PM	61.4
7/12/1995	2:30 PM	50.4	7/13/1995	12:40 PM	46.1	7/13/1995	2:17 PM	45.3
6/11/1996	3:06 PM	45.3	6/17/1996	10:30 AM	49.8	6/24/1996	1:10 PM	49.9
7/10/1996	1:21 PM	48.2	7/15/1996	12:02 PM	47.5	7/24/1996	10:22 AM	49.5
7/30/1996	12:38 PM	47.4	8/8/1996	12:50 PM	49.5	8/19/1996	1:02 PM	49.4
6/2/1997	4:00 PM	52.2	6/4/1997	10:25 AM	53.5	6/11/1997	10:35 AM	49.4
7/1/1997	9:04 AM	56.3						

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Bourne Rotary - Clay Pond	02:03	53.6			
Clay Pond - Barlows Landing	01:51	50.2			
Barlows Landing - Otis Rotary	00:56	42.6			
Otis Rotary - Bour/Falm TL	02:22	51.8			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Falmouth	Route 28	3	Westbound/North

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/25/1988	1:45 PM	29.8	3/7/1995	2:00 PM	*	6/1/1995	9:49 AM	32.7
6/7/1995	4:32 PM	33.2	6/26/1995	2:59 PM	29.6	7/10/1995	1:14 PM	32.5
7/11/1995	3:30 PM	30.8	7/12/1995	1:34 PM	31.7	7/13/1995	2:00 PM	28.4
7/13/1995	1:35 PM	33.2	6/10/1996	3:40 PM	30.1	6/20/1996	11:30 AM	27.4
6/24/1996	11:03 AM	31.0	7/10/1996	10:55 AM	*	7/15/1996	10:25 AM	29.1
7/24/1996	9:02 AM	34.2	7/30/1996	10:18 AM	27.7	8/8/1996	11:13 AM	29.5
8/15/1996	10:51 AM	27.9	8/19/1996	2:56 PM	33.0	6/4/1997	12:40 PM	29.0
6/11/1997	1:03 PM	*	7/2/1997	11:22 AM	28.9	7/7/1997	11:55 AM	*

Sub Segment	Average Travel Time	Average Speed
Mashpee TL - Metoxit	01:24	38.3
Metoxit - Fresh Pond	02:14	36.3
Fresh Pond - Central	00:47	38.4
Central - Davisville	01:51	22.5
Davisville - Brick Kiln (E)	01:39	33.2
(E) Brick Kiln - Trotting Park	02:57	26.1
Trotting Park - Jones (E)	03:36	12.3
Jones (E) - Falmouth Heights	01:08	28.3
Falmouth Heights - Shore	02:24	19.2
Shore - Town Hall	00:57	17.0

Sub Segment	Average Travel Time	Average Speed
Town Hall - Palmer	01:01	12.6
Palmer - Jones (W)	02:13	16.9
Jones (W) - Brick Kiln (W)	03:10	43.4
(W) Brick Kiln - Thomas Landers	01:40	58.1
Thomas Landers - Route 151	02:14	55.9
Route 151 - Bourne TL	00:49	56.3

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Falmouth	Route 28	4	Eastbound/South

date of study	time of study	corridor speed		date of study	time of study	corridor speed		date of study	time of study	corridor speed	
8/25/1988	2:30 PM		*	7/25/1992	12:00 PM		*	2/22/1995	8:00 AM		*
2/28/1995	8:00 AM		*	6/1/1995	9:18 AM	33.4		6/7/1995	2:42 PM	33.0	
6/26/1995	3:50 PM	33.2		7/10/1995	2:18 PM	29.5		7/11/1995	4:15 PM	33.9	
7/12/1995	2:37 PM	24.7		7/13/1995	12:48 PM	29.1		7/13/1995	2:26 PM	30.2	
6/13/1996	10:18 AM	29.9		6/17/1996	10:45 AM	33.6		6/24/1996	1:18 PM	32.4	
7/11/1996	1:10 PM	32.0		7/15/1996	12:54 PM	27.4		7/24/1996	10:37 AM	32.3	
7/30/1996	12:47 PM	32.4		8/8/1996	1:00 PM	33.5		8/15/1996	1:09 PM	29.3	
6/4/1997	10:40 AM	31.5		6/11/1997	10:45 AM		*	6/30/1997	2:14 PM		*
7/1/1997	9:11 AM	31.1									

Sub Segment	Average Travel Time / Speed		Sub Segment	Average Travel Time / Speed	
Bourne TL - Route 151	00:45	59.5	Trotting Park - Brick Kiln (E)	02:36	28.3
Route 151 - Thomas Landers	02:08	58.9	(E) Brick Kiln - Davisville	02:53	21.1
Thomas Landers - Brick Kiln (W)	01:40	57.8	Davisville - Central	01:27	29.8
(W) Brick Kiln - Jones (W)	03:36	39.2	Central - Fresh Pond	00:51	38.9
Jones (W) - Palmer	01:22	25.2	Fresh Pond - Metoxit	02:01	41.4
Palmer - Town Hall	01:26	9.0	Metoxit - Mashpee TL	02:32	35.2
Town Hall - Shore	01:10	14.4			
Shore - Falmouth Heights	02:15	20.1			
Falmouth Heights - Jones (E)	02:01	14.4			
Jones (E) - Trotting Park	01:29	27.8			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Mashpee	Route 28	5	Eastbound

date of study	time of study	corridor speed
8/25/1988	3:30 PM	34.6
5/31/1995	4:15 PM	40.5
6/28/1995	1:45 PM	39.0
7/13/1995	2:57 PM	37.2
6/24/1996	2:28 PM	33.9
7/24/1996	11:12 AM	36.9
8/15/1996	1:40 PM	37.6
6/4/1997	11:05 AM	38.6
6/30/1997	2:38 PM	20.8

date of study	time of study	corridor speed
8/26/1988	2:30 PM	*
6/7/1995	3:10 PM	39.6
7/10/1995	2:50 PM	36.7
6/13/1996	10:50 AM	37.4
7/10/1996	1:55 PM	36.7
7/30/1996	1:14 PM	37.9
8/20/1996	1:50 PM	39.5
6/11/1997	11:10 AM	37.5
7/1/1997	9:41 AM	40.4

date of study	time of study	corridor speed
2/22/1995	8:00 AM	*
6/26/1995	4:17 PM	31.1
7/12/1995	3:13 PM	33.2
6/17/1996	11:20 AM	39.5
7/15/1996	1:34 PM	39.2
8/8/1996	1:25 PM	18.9
6/3/1997	2:50 PM	39.0
6/30/1997	2:38 PM	20.8

Sub Segment	Average Travel Time / Speed	
Falmouth TL - Mashpee Rotary	03:09	36.4
Mashpee Rotary - Quinaquisset	00:42	36.4
Quinaquisset - Barnstable TL	02:28	36.1

Sub Segment	Average Travel Time / Speed

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Mashpee	Route 28	6	Westbound

date of study	time of study	corridor speed		date of study	time of study	corridor speed		date of study	time of study	corridor speed
8/26/1988	2:00 PM		*	3/7/1995	2:00 PM		*	5/31/1995	4:09 PM	40.0
6/7/1995	4:25 PM	40.5		6/26/1995	2:53 PM	37.7		7/10/1995	1:08 PM	41.0
7/12/1995	1:28 PM	39.0		6/10/1996	3:35 PM	38.2		6/20/1996	11:20 AM	38.8
6/24/1996	10:54 AM	38.4		7/10/1996	10:21 AM	35.1		7/15/1996	10:19 AM	39.9
7/24/1996	8:57 AM	39.3		7/30/1996	10:11 AM	36.4		8/8/1996	11:06 AM	33.5
8/15/1996	10:45 AM	37.7		8/19/1996	2:43 PM	37.9		6/3/1997	2:45 PM	30.3
6/4/1997	12:30 PM	19.3		6/11/1997	12:55 PM	37.9		7/2/1997	10:44 AM	38.0
7/10/1997	11:35 AM	33.7								

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Barnstable TL - Quinaquisset	02:00	39.7			
Quinaquisset - Mashpee Rotary	00:59	30.8			
Mashpee Rotary - Falmouth TL	03:01	37.9			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Barnstable	Route 28	7	Eastbound

date of study	time of study	corridor speed		date of study	time of study	corridor speed		date of study	time of study	corridor speed	
8/25/1988	3:30 PM		*	8/26/1988	2:30 PM	29.6		8/26/1988			*
2/22/1995	8:30 AM		*	2/28/1995			*	5/31/1995	4:20 PM	33.2	
6/7/1995	3:17 PM	33.2		6/19/1995	2:47 PM	33.3		6/22/1995	4:10 PM	30.3	
6/26/1995	4:24 PM	26.8		7/10/1995	2:55 PM	29.0		7/10/1995	4:06 PM	29.6	
7/13/1995	3:14 PM	28.9		6/3/1996	4:45 PM	30.6		6/13/1996	10:57 AM	28.3	
6/17/1996	11:25 AM	30.0		6/24/1996	2:35 PM	26.5		7/10/1996	2:05 PM	26.3	
7/15/1996	1:40 PM	21.7		7/24/1996	11:19 AM	28.0		7/30/1996	1:45 PM	27.8	
8/8/1996	1:32 PM	28.0		8/15/1996	1:49 PM	29.4		8/20/1996	1:56 PM	29.8	
6/3/1997	2:55 PM	27.5		6/4/1997	11:15 AM		*	6/11/1997	11:20 AM	29.8	
6/30/1997	2:59 PM	26.2		7/1/1997	9:41 AM	29.5					

Sub Segment	Average Travel Time / Speed		Sub Segment	Average Travel Time / Speed	
Mashpee TL - Route 130	01:35	23.4	Old Strawberry Hill - Pitchers Way	01:26	25.5
Route 130 - Newtown	00:39	31.7	Pitchers Way - Bearses Way	01:52	19.2
Newtown - Putnam	02:09	39.7	Bearses Way - Airport Rotary	01:32	26.1
Putnam - Route 149	00:58	27.8	Airport Rotary - Yarmouth Rd	02:07	20.2
Route 149 - South County Rd	00:48	39.3	Yarmouth Rd - Yarmouth TL	00:43	25.3
S. County Rd - Osterville/West Barnstable	01:08	33.6			
Osterville/West Barnstable - Lumbert Mill	01:33	41.7			
Lumbert Mill - Old Stage	02:25	31.5			
Old Stage - West Main St	01:57	30.2			
West main St - Old Strawberry Hill	00:58	46.0			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Barnstable	Route 28	8	Westbound

date of study	time of study	corridor speed		date of study	time of study	corridor speed		date of study	time of study	corridor speed	
		?	8	8/25/1988	10:30 AM		*	8/26/1988	2:00 PM		*
8/26/1988	3:15 PM		*	8/26/1988	11:45 PM		*	3/7/1995	1:30 PM		*
5/31/1995	3:42 PM	26.3		6/7/1995	3:59 PM	25.9		6/19/1995	2:24 PM	30.0	
6/21/1995	4:08 PM	28.1		6/22/1995	3:40 PM	24.4		6/26/1995	2:30 PM	27.6	
7/10/1995	12:46 PM	28.8		7/10/1995	3:34 PM	25.5		6/3/1996	4:19 PM	27.2	
6/10/1996	3:10 PM	25.2		6/20/1996	10:55 AM	28.9		6/24/1996	10:23 AM	24.8	
7/10/1996	10:00 AM	30.0		7/15/1996	9:58 AM	31.0		7/24/1996	8:35 AM	31.1	
7/30/1996	9:48 AM	28.0		8/8/1996	10:42 AM	27.0		8/15/1996	10:26 AM	32.2	
8/19/1996	2:22 PM	29.1		6/3/1997	2:20 PM	27.5		6/4/1997	11:45 AM		*
6/11/1997	12:30 PM	31.6		7/2/1997	10:21 AM	27.4		7/10/1997	11:05 AM	23.5	

Sub Segment	Average Travel Time	Average Speed
Yarmouth TL - Yarmouth Rd	01:36	14.0
Yarmouth Rd - Airport Rotary	01:52	22.1
Airport Rotary - Bearses Way	02:13	19.6
Bearses Way - Pitchers Way	00:56	33.1
Pitchers Way - Old Strawberry Hill	01:24	25.7
Old Strawberry Hill - West Main St	00:59	47.0
West Main St - Old Stage Rd	02:50	23.2
Old Stage Rd - Lumbert Mill	01:46	39.6
Lumbert Mill - Osterville/West Barnstable	01:48	36.9
Osterville/West Barnstable - S. County	00:55	40.4

Sub Segment	Average Travel Time	Average Speed
South County - Rt 149	00:46	41.9
Rt 149 - Putnam	01:16	20.5
Putnam - Newtown	02:08	42.3
Newtown - Route 130	00:54	24.4
Route 130 - Mashpee TL	01:13	33.5

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Yarmouth	Route 28	9	Eastbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	9:30 AM	27.7	8/26/1988	3:00 PM	22.6	2/22/1995	9:00 AM	*
5/31/1995	3:06 PM	25.1	6/7/1995	3:37 PM	24.3	6/14/1995	3:00 PM	19.9
6/15/1995	4:45 PM	25.1	6/19/1995	3:06 PM	23.7	6/20/1995	2:50 PM	26.0
6/28/1995	2:20 PM	23.5	7/5/1995	1:25 PM	20.7	6/5/1996	1:50 PM	25.8
6/13/1996	11:26 AM	24.8	6/17/1996	11:50 AM	25.6	6/24/1996	3:02 PM	18.1
7/9/1996	11:00 AM	21.1	7/16/1996	12:12 PM	18.7	7/22/1996	11:15 AM	19.8
7/31/1996	11:55 AM	18.2	8/7/1996	10:25 AM	18.7	8/13/1996	10:41 AM	19.5
8/20/1996	2:18 PM	22.3	5/29/1997	11:45 AM	26.4	6/3/1997	9:15 AM	31.1
6/5/1997	1:30 PM	30.2	6/10/1997	9:20 AM	*	6/25/1997	9:50 AM	21.9
6/30/1997	3:23 PM	*	7/1/1997	10:08 AM	*	7/14/1997	9:12 AM	26.4

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Barnstable Tl - East Main	00:23	29.0			
East Main - Camp	00:48	18.8			
Camp - Sea St/Higgens Crowell	02:50	27.5			
Sea St/Higgens Crowell - South Sea	02:22	18.3			
South Sea - Long Pond	02:48	26.8			
Long Pond - Forest	00:57	25.8			
Forest - N. Main St	03:00	23.5			
N. Main St - Dennis TL	00:26	27.8			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Yarmouth	Route 28	10	Westbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	11:30 AM	23.2	8/26/1988	3:00 PM	23.9	5/31/1995	3:21 PM	24.2
6/7/1995	3:45 PM	24.1	6/14/1995	3:53 PM	24.2	6/15/1995	4:35 PM	26.2
6/19/1995	2:12 PM	23.1	6/19/1995	3:43 PM	22.2	6/20/1995	4:40 PM	26.5
6/21/1995	3:45 PM	22.0	6/28/1995	4:32 PM	22.4	6/5/1996	3:00 PM	25.8
6/10/1996	2:04 PM	20.2	6/20/1996	9:55 AM	25.1	6/24/1996	3:40 PM	20.0
7/8/1996	3:31 PM	20.1	7/16/1996	3:22 PM	25.8	7/22/1996	1:55 PM	22.9
7/31/1996	3:54 PM	17.8	8/7/1996	1:38 PM	15.6	8/13/1996	2:13 PM	5.3
8/19/1996	1:57 PM	19.4	5/29/1997	1:07 PM	27.9	6/3/1997	9:40 AM	29.3
6/5/1997	3:50 PM	26.6	6/10/1997	12:45 PM	25.4	6/11/1997	12:20 PM	26.5
6/25/1997	1:20 PM	22.0	7/1/1997	10:40 AM	21.9	7/2/1997	10:07 AM	22.0
7/14/1997	1:23 PM	20.1	7/21/1997	1:30 PM	16.5			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction			
Sub Segment		Average Travel Time	Speed	Sub Segment	Average Travel Time	Speed
Dennis TL - N. Main St		01:19	13.4			
N. Main St - Forest		02:57	25.1			
Forest - Long Pond		01:06	24.2			
Long Pond - South Sea		03:51	22.5			
South Sea - Sea St/Higgins Crowell		01:59	21.7			
Sea St/Higgins Crowell - Camp		03:11	26.8			
Camp - East Main St		00:43	21.4			
East Main St - Barnstable TL		00:09	55.3			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Dennis	Route 28	11	Eastbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	9:30 AM	30.3	6/14/1995	3:16 PM	22.4	6/15/1995	4:58 PM	27.6
6/19/1995	3:19 PM	23.3	6/20/1995	3:02 PM	26.8	6/28/1995	2:34 PM	22.5
7/5/1995	1:45 PM	18.8	7/6/1995	4:08 PM	27.3	7/11/1995	2:15 PM	13.3
7/11/1995	4:27 PM	23.6	6/5/1996	2:07 PM	27.4	6/13/1996	11:40 AM	24.6
6/17/1996	12:25 PM	26.3	6/24/1996	3:22 PM	21.9	7/9/1996	11:24 AM	16.8
7/16/1996	12:29 PM	25.3	7/22/1996	11:36 AM	23.5	7/31/1996	12:12 PM	12.4
8/7/1996	10:42 AM	18.6	8/13/1996	10:57 AM	16.7	8/20/1996	2:38 PM	26.9
6/3/1997	9:25 AM	*	6/5/1997	1:43 PM	28.1	6/10/1997	9:36 AM	28.7
6/25/1997	10:03 AM	28.5	7/14/1997	9:25 AM	24.2			

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Yarmouth TL - School St	01:31	27.2			
School St - Old Main St	01:07	24.5			
Old Main St - Main St/Trotting Park Rd	00:42	33.0			
Main St/Trotting Park Rd - Route 134	01:36	18.3			
Route 134 - Shad Hole	00:23	29.5			
Shad Hole - Sea St	01:38	30.4			
Sea St - Upper County	01:43	17.7			
Upper County - Harwich TL	00:09	4.6			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Dennis	Route 28	12	Westbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	11:30 AM	26.0	6/14/1995	3:45 PM	29.7	6/15/1995	4:28 PM	28.6
6/19/1995	2:04 PM	27.8	6/19/1995	3:35 PM	25.3	6/20/1995	3:34 PM	35.6
6/21/1995	3:37 PM	29.5	6/28/1995	4:22 PM	20.2	7/5/1995	3:40 PM	21.6
7/6/1995	2:22 PM	24.0	6/5/1996	2:45 PM	32.7	6/10/1996	2:02 PM	27.7
6/20/1996	9:45 AM	31.6	6/24/1996	3:32 PM	28.9	7/8/1996	3:22 PM	26.9
7/16/1996	3:16 PM	30.1	7/22/1996	1:48 PM	28.5	7/31/1996	10:15 AM	18.1
8/7/1996	1:29 PM	20.8	8/13/1996	1:45 PM	7.0	8/19/1996	1:28 PM	26.6
5/29/1997	1:50 PM	28.8	6/3/1997	9:32 AM	*	6/5/1997	2:45 PM	30.0
6/10/1997	12:39 PM	29.6	6/25/1997	1:10 PM	27.6	7/14/1997	1:17 PM	29.6
7/21/1997	1:30 PM	19.4						

Sub Segment	Average Travel Time / Speed		Sub Segment	Average Travel Time / Speed
Harwich TL - Upper County	00:08	5.7		
Upper County - Sea St	00:50	27.9		
Sea St - Shad Hole	01:37	30.8		
Shad Hole - Route 134	00:40	20.3		
Route 134 - Main St/Trotting Park	00:39	31.3		
Main St/Trotting Park - Old Main St	00:42	37.2		
Old Main St - School St	01:09	26.7		
School St - Yarmouth TL	02:20	26.7		

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Harwich	Route 28	13	Eastbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	9:45 AM	32.2	2/28/1995	9:20 AM	*	6/14/1995	3:25 PM	31.6
6/15/1995	3:05 PM	29.2	6/19/1995	12:45 PM	30.2	6/20/1995	3:09 PM	34.1
6/28/1995	2:42 PM	30.4	7/5/1995	1:57 PM	25.9	7/6/1995	4:15 PM	27.1
7/11/1995	2:30 PM	26.8	6/5/1996	2:15 PM	30.7	6/13/1996	11:50 AM	29.9
6/17/1996	12:40 PM	28.8	6/25/1996	9:55 AM	32.1	7/9/1996	11:36 AM	27.1
7/16/1996	1:30 PM	28.0	7/22/1996	11:45 AM	27.7	7/31/1996	12:27 PM	25.5
8/7/1996	10:54 AM	25.3	8/13/1996	11:09 AM	26.7	8/20/1996	2:46 PM	29.2
6/5/1997	1:50 PM	33.4	6/10/1997	9:45 AM	32.0	6/25/1997	10:10 AM	*
7/14/1997	12:45 PM	28.1						

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Dennis TL - Route 39	03:11	30.3			
Route 39 - Lower County Rd	01:36	28.4			
Lower County Rd - Bank	01:17	20.4			
Bank - Depot/Uncle Venies	03:34	31.5			
Depot/Uncle Venies - Chatham TL	00:38	34.3			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Harwich	Route 28	14	Westbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	11:15 AM	25.9	6/14/1995	3:35 PM	28.2	6/15/1995	4:18 PM	30.0
6/19/1995	1:55 PM	32.5	6/20/1995	4:24 PM	32.5	6/21/1995	3:28 PM	32.0
6/28/1995	4:07 PM	26.6	7/5/1995	3:28 PM	25.3	7/6/1995	2:12 PM	30.5
7/11/1995	4:01 PM	25.3	6/5/1996	2:32 PM	29.5	6/10/1996	1:43 PM	31.7
6/20/1996	9:35 AM	30.4	6/26/1996	10:44 AM	28.4	7/8/1996	3:04 PM	15.8
7/16/1996	2:57 PM	26.3	7/22/1996	1:37 PM	25.4	7/31/1996	3:00 PM	17.8
8/7/1996	1:15 PM	20.9	8/13/1996	1:30 PM	19.9	8/19/1996	1:16 PM	25.8
6/5/1997	2:25 PM	30.1	6/10/1997	12:25 PM	33.4	6/25/1997	1:00 PM	30.7
7/14/1997	12:55 PM	25.4						

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Chatham TL - Depot/Uncle Venies	00:37	34.9			
Depot/Uncle Venies - Bank	03:30	32.8			
Bank - Lower County Rd	01:10	22.3			
Lower County Rd - Route 39	01:28	30.7			
Route 39 - Dennis TL	04:34	23.0			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Chatham	Route 28	15	Eastbound/North

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	9:45 AM	31.5	2/22/1995	9:15 AM	*	2/28/1995	9:30 AM	*
6/5/1995	3:30 PM	34.4	6/15/1995	3:15 PM	34.7	6/19/1995	12:55 PM	34.7
6/20/1995	3:18 PM	31.7	6/28/1995	2:52 PM	32.8	7/5/1995	2:10 PM	31.6
7/6/1995	4:29 PM	28.7	7/11/1995	2:41 PM	24.6	6/6/1996	12:40 PM	34.0
6/13/1996	12:03 PM	30.1	6/17/1996	1:00 PM	32.8	6/25/1996	10:08 AM	31.2
7/9/1996	11:55 AM	26.6	7/16/1996	1:43 PM	30.2	7/22/1996	11:55 AM	29.8
7/31/1996	12:39 PM	21.7	8/7/1996	11:05 AM	23.4	8/13/1996	11:20 AM	24.7
6/5/1997	2:00 PM	*	6/10/1997	9:55 AM	32.9	6/25/1997	10:20 AM	31.3

Sub Segment	Average Travel Time / Speed		Sub Segment	Average Travel Time / Speed	
Harwich TL - Route 137	01:21	34.1			
Route 137 - Barn Hill	02:41	33.7			
Barn Hill - Crowell/Queen Anne	03:11	28.3			
Crowell/Queen Anne - Main	01:17	19.8			
Main - Shore	01:48	26.5			
Shore - Crowell	02:26	33.7			
Crowell - Training Field	01:27	35.4			
Training Field - Harwich TL	00:38	34.8			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Chatham	Route 28	16	Southbound/West

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	11:00 AM	31.0	3/7/1995	1:15 PM	*	6/5/1995	3:15 PM	33.7
6/15/1995	4:04 PM	32.0	6/19/1995	1:42 PM	31.7	6/20/1995	4:11 PM	34.7
6/21/1995	3:15 PM	32.9	6/28/1995	3:53 PM	30.7	7/5/1995	3:15 PM	32.4
7/6/1995	1:58 PM	33.9	6/6/1996	2:35 PM	32.8	6/10/1996	1:23 PM	31.8
6/19/1996	2:40 PM	26.3	6/26/1996	10:28 AM	31.4	7/8/1996	2:49 PM	28.8
7/16/1996	2:33 PM	32.2	7/22/1996	1:23 PM	31.8	7/31/1996	2:06 PM	30.1
8/7/1996	12:14 PM	29.9	8/13/1996	1:15 PM	28.9	8/19/1996	1:01 PM	30.9
6/5/1997	2:15 PM	35.7	6/10/1997	12:00 PM	34.5	6/25/1997	12:45 PM	32.2

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Harwich TL - Training Field	00:32	37.3			
Training Field - Crowell	01:24	36.8			
Crowell - Shore	02:27	33.5			
Shore - Main	01:39	28.7			
Main - Crowell/Queen Anne	01:07	20.6			
Crowell/Queen Anne - Barn Hill	02:41	30.9			
Barn Hill - Route 137	02:37	34.6			
Route 137 - Harwich TL	01:30	33.2			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Harwich	Route 28	17	Northbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	9:45 AM	33.0	6/5/1995	3:35 PM	36.0	6/15/1995	3:27 PM	36.5
6/19/1995	1:07 PM	36.3	6/20/1995	3:32 PM	37.7	6/28/1995	3:06 PM	36.0
7/5/1995	2:24 PM	21.8	7/6/1995	4:41 PM	33.3	7/11/1995	2:59 PM	30.5
7/11/1995	2:59 PM	30.5	7/11/1995	3:30 PM	34.0	6/6/1996	1:05 PM	35.2
6/13/1996	12:49 PM	33.7	6/17/1996	1:20 PM	32.1	6/25/1996	10:27 AM	34.9
7/9/1996	1:10 PM	31.9	7/16/1996	1:56 PM	32.4	7/22/1996	12:10 PM	30.7
7/31/1996	1:29 PM	33.7	8/7/1996	11:24 AM	34.4	8/13/1996	11:38 AM	33.7
8/20/1996	3:10 PM	34.2	5/28/1997	2:40 PM	36.0	6/10/1997	10:05 AM	29.9
6/25/1997	10:39 AM	30.5						

Sub Segment	Average Travel Time	Average Speed
Chatham TL - Pleasant Bay	01:23	34.6
Pleasant Bay - Orleans TL	01:02	31.7

Sub Segment	Average Travel Time / Speed

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Harwich	Route 28	18	Southbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	11:15 AM	36.0	6/5/1995	3:10 PM	37.1	6/15/1995	4:02 PM	35.7
6/19/1995	1:39 PM	37.1	6/20/1995	4:08 PM	26.5	6/21/1995	3:12 PM	37.1
6/28/1995	3:51 PM	36.3	7/5/1995	3:13 PM	40.6	7/6/1995	1:55 PM	36.8
7/11/1995	3:27 PM	33.7	6/6/1996	2:25 PM	32.8	6/10/1996	1:19 PM	34.9
6/19/1996	2:35 PM	35.7	6/26/1996	10:26 AM	32.8	7/8/1996	2:47 PM	34.4
7/16/1996	2:31 PM	34.9	7/22/1996	1:20 PM	31.5	7/31/1996	2:04 PM	32.8
8/7/1996	12:10 PM	30.7	8/13/1996	1:12 PM	33.0	8/19/1996	12:29 PM	29.7
5/28/1997	2:30 PM	35.5	6/10/1997	12:00 PM	36.5	6/25/1997	12:42 PM	36.8

Sub Segment	Average Travel Time	Average Speed
Orleans TL - Pleasant Bay	00:58	33.3
Pleasant Bay - Chatham TL	01:21	35.8

Sub Segment	Average Travel Time / Speed

Town	Corridor Name	Corridor Number	Direction
Orleans	Route 28	19	Northbound

*Travel time information incomplete

date of study	time of study	corridor speed
8/26/1988	10:00 AM	32.2
6/5/1995	3:40 PM	33.0
6/20/1995	3:35 PM	35.0
7/6/1995	4:46 PM	33.2
6/13/1996	12:53 PM	34.0
7/9/1996	1:13 PM	30.4
7/31/1996	1:32 PM	25.7
8/20/1996	3:15 PM	28.4
6/25/1997	10:42 AM	32.3

date of study	time of study	corridor speed
2/22/1995	10:00 AM	*
6/15/1995	3:30 PM	37.3
6/28/1995	3:08 PM	33.5
7/11/1995	3:02 PM	29.7
6/17/1996	1:25 PM	31.1
7/16/1996	1:58 PM	32.6
8/7/1996	11:27 AM	26.6
5/28/1997	2:00 PM	32.0

date of study	time of study	corridor speed
2/28/1995	9:45 AM	*
6/19/1995	1:10 PM	30.7
7/5/1995	2:27 PM	35.7
6/6/1996	1:10 PM	34.6
6/25/1996	10:30 AM	31.9
7/22/1996	12:12 PM	30.2
8/13/1996	11:40 AM	28.2
6/10/1997	10:10 AM	34.6

Sub Segment	Average Travel Time / Speed	
Harwich TL - Route 39	02:36	38.0
Route 39 - Eldredge Park Way	03:58	34.4
Eldredge Park Way - Main	00:56	17.9
Main - Route 6A	01:03	23.9

Sub Segment	Average Travel Time / Speed

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Orleans	Route 28	20	Southbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	10:30 AM	33.5	3/7/1995	1:00 PM	*	6/5/1995	3:00 PM	33.6
6/15/1995	3:34 PM	33.2	6/19/1995	1:32 PM	34.6	6/20/1995	4:00 PM	35.6
6/21/1995	3:05 PM	36.6	6/28/1995	3:43 PM	33.4	7/5/1995	3:04 PM	29.6
7/6/1995	1:48 PM	37.2	6/6/1996	2:15 PM	35.8	6/10/1996	1:07 PM	32.4
6/19/1996	2:25 PM	32.4	6/26/1996	10:16 AM	34.3	7/8/1996	2:38 PM	33.2
7/16/1996	2:23 PM	34.9	7/22/1996	12:30 PM	31.9	7/31/1996	1:43 PM	31.9
8/7/1996	12:00 PM	32.6	8/13/1996	1:03 PM	30.8	8/19/1996	12:13 PM	32.0
5/28/1997	2:15 PM	33.0	6/10/1997	11:55 AM	37.8	6/25/1997	12:35 PM	33.7

Sub Segment	Average Travel Time	Average Speed
Route 6A - Main	01:07	22.1
Main - Eldredge Park Way	00:52	19.9
Eldredge Park Way - Route 39	03:33	38.0
Route 39 - Harwich TL	02:34	38.4

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Orleans	Route 28/6A	21	Northbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	10:00 AM	27.7	6/5/1995	2:24 PM	26.9	6/15/1995	3:37 PM	22.6
6/19/1995	1:20 PM	26.9	6/20/1995	3:44 PM	26.0	6/28/1995	3:15 PM	22.0
7/5/1995	2:35 PM	22.6	7/6/1995	4:54 PM	26.0	7/11/1995	3:11 PM	14.8
7/11/1995	3:15 PM	19.9	6/6/1996	1:30 PM	18.6	6/10/1996	12:57 PM	15.1
6/17/1996	1:45 PM	26.0	6/25/1996	10:39 AM	20.4	7/8/1996	11:22 AM	14.3
7/17/1996	11:44 AM	16.1	7/25/1996	9:58 AM	26.4	8/1/1996	12:47 PM	22.9
8/6/1996	11:59 AM	24.9	8/14/1996	12:31 PM	22.3	8/19/1996	10:45 AM	18.8
6/25/1997	11:30 AM	21.4						

Sub Segment	Average Travel Time / Speed	
Route 6A - Old County Rd	00:39	19.7
Old County Rd - Eastham TL	00:18	38.0
Eastham TL - Orleans Rotary	00:22	16.1

Sub Segment	Average Travel Time / Speed

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Orleans	Route 28/6A	22	Southbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/26/1988	10:30 AM	23.2	6/5/1995	2:20 PM	22.6	6/15/1995	3:52 PM	22.0
6/19/1995	1:29 PM	18.6	6/20/1995	3:57 PM	18.4	6/21/1995	3:03 PM	20.9
6/28/1995	3:17 PM	24.2	7/5/1995	3:02 PM	15.0	7/6/1995	1:46 PM	10.6
7/11/1995	3:13 PM	13.3	6/6/1996	1:35 PM	8.5	6/10/1996	12:28 PM	20.4
6/17/1996	3:35 PM	16.9	6/25/1996	11:51 AM	20.1	7/8/1996	11:24 AM	13.5
7/17/1996	1:16 PM	26.9	7/25/1996	11:21 AM	14.5	8/1/1996	1:03 PM	18.6
8/6/1996	2:18 PM	13.4	8/14/1996	1:51 PM	17.1	8/19/1996	10:12 AM	17.4
6/25/1997	12:35 PM	14.3						

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Orleans Rotary - Orleans TL	00:27	15.1			
Orleans TL - Old County Rd	00:35	22.1			
Old County Rd - Route 6A	00:40	19.5			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Barnstable	Route 132	23	Southbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
2/21/1995	1:00 PM	25.3	5/31/1995	2:34 PM	24.9	6/6/1995	4:16 PM	31.2
6/6/1995	3:59 PM	19.9	6/6/1995	4:28 PM	29.0	6/6/1995	3:19 PM	26.9
6/14/1995	4:22 PM	17.2	6/26/1995	2:15 PM	19.6	7/10/1995	12:32 PM	20.1
7/13/1995	12:30 PM	24.5	6/10/1996	2:36 PM	21.1	6/18/1996	2:00 PM	26.0
6/24/1996	10:12 AM	27.5	7/9/1996	10:45 AM	21.2	7/15/1996	9:51 AM	30.0
7/24/1996	8:25 AM	21.7	7/30/1996	9:37 AM	24.8	8/8/1996	10:28 AM	22.0
8/13/1996	10:16 AM	25.6	5/29/1997	11:20 AM	21.3	6/5/1997	1:25 PM	28.8
6/10/1997	9:10 AM	26.3	6/19/1997	10:22 AM	24.8	6/25/1997	9:40 AM	30.0
7/14/1997	9:02 AM	21.7						

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Route 6 - Old Route 132	01:30	35.4			
Route 132 - Phinney's	01:34	25.1			
Phinney's - Bearse's	00:50	20.3			
Bearse's - Airport Rd	01:32	24.5			
Airport Rd - Airport Rotary	01:57	22.6			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Barnstable	Route 132	24	Northbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
2/21/1995	1:00 PM	26.9	5/31/1995	2:42 PM	27.6	6/6/1995	4:08 PM	26.6
6/6/1995	3:52 PM	28.9	6/6/1995	4:22 PM	29.8	6/6/1995	4:35 PM	29.8
6/14/1995	4:22 PM	13.5	7/13/1995	12:50 PM	24.4	7/24/1995	3:59 PM	23.7
7/24/1995	4:15 PM	22.8	6/10/1996	2:26 PM	26.8	6/18/1996	2:07 PM	26.5
6/24/1996	4:00 PM	18.5	7/8/1996	4:10 PM	18.6	7/15/1996	2:36 PM	19.2
7/24/1996	11:45 AM	24.8	7/30/1996	2:10 PM	31.0	8/8/1996	2:05 PM	28.2
5/29/1997	1:19 PM	27.3	6/3/1997	9:55 AM	36.6	6/10/1997	1:00 PM	25.1
6/13/1997	11:10 AM	23.0	6/19/1997	12:00 PM	*	6/25/1997	1:40 PM	20.9
7/14/1997	1:42 PM	22.0	7/21/1997	2:00 PM	18.7 *			

Sub Segment	Average Travel Time / Speed		Sub Segment	Average Travel Time / Speed
Airport Rotary - Airport Rd	01:58	22.0		
Airport Rd - Bearse's	02:06	19.1		
Bearse's - Phinney's	00:51	21.4		
Phinney's - Old Route 132	01:10	33.0		
Old Route 132 - Route 6	01:38	36.8		

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Bourne	Rt 6 - Scenic	25	Eastbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
		?	7/10/0997	2:15 PM	50.8	7/10/1995	3:35 PM	54.0
7/10/1995	3:45 PM	55.7	7/10/1995	3:55 PM	56.5	7/20/1995	4:48 PM	62.6
7/20/1995	4:58 PM	59.8	7/20/1995	4:38 PM	60.0	6/10/1996	4:32 PM	48.7
6/20/1996	12:15 PM	48.2	6/24/1996	11:43 AM	46.4	7/10/1996	11:45 AM	21.5
7/15/1996	11:06 AM	53.8	7/24/1996	9:38 AM	47.3	7/30/1996	11:16 AM	49.9
8/8/1996	11:53 AM	43.3	8/15/1996	11:38 AM	32.0	8/19/1996	3:33 PM	49.1
6/4/1997	1:20 PM	35.8	6/11/1997	1:56 PM	49.9	7/2/1997	12:46 PM	49.9
7/7/1997	12:42 PM	44.0						

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Belmont Circle - Bournedale Rd	03:08	58.8			
Bournedale Rd - Sagamore Rotary	02:06	34.4			

Town	Corridor Name	Corridor Number	Direction
Bourne	Rt 6 - Scenic	26	Westbound

*Travel time information incomplete

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
2/28/1995		46.4	7/10/1995	3:30 PM	57.4	7/10/1995	3:40 PM	54.8
7/10/1995	3:50 PM	58.1	7/20/1995	4:40 PM	59.1	7/20/1995	4:53 PM	62.1
7/20/1995	5:03 PM	60.6	6/11/1996	2:58 PM	44.5	6/17/1996	10:25 AM	49.1
6/24/1996	12:29 PM	50.8	7/10/1996	1:13 PM	49.2	7/15/1996	11:54 AM	52.1
7/24/1996	10:15 AM	40.4	7/30/1996	11:58 AM	45.2	8/8/1996	12:40 PM	51.0
8/15/1996	12:17 PM	41.9	6/4/1997	10:15 AM	56.8	6/11/1997	10:25 AM	51.0
6/30/1997	10:36 AM	51.7	7/1/1997	8:44 AM	49.9			

Sub Segment	Average Travel Time / Speed		Sub Segment	Average Travel Time / Speed
Sagamore Rotary - Bournedale Rd	01:30	39.7		
Bournedale Rd - Belmont Circle	03:14	57.5		

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Brewster/Orleans	Route 6A	27	Eastbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
3/7/1995	12:00 PM	37.6	6/5/1995	2:49 PM	33.8	6/12/1995	3:39 PM	30.6
7/18/1995	3:45 PM	27.5	7/19/1995	3:02 PM	33.2	7/19/1995	3:30 PM	29.6
7/20/1995	3:50 PM	30.5	7/20/1995	3:25 PM	31.8	7/24/1995	3:08 PM	27.7
7/24/1995	2:28 PM	30.0	6/6/1996	2:00 PM	31.8	6/10/1996	12:43 PM	31.1
6/19/1996	2:05 PM	30.5	6/26/1996	9:33 AM	29.3	7/8/1996	11:08 AM	28.1
7/17/1996	11:29 AM	25.5	7/25/1996	9:45 AM	29.6	8/1/1996	12:30 PM	22.0
8/6/1996	11:40 AM	21.1	8/14/1996	12:16 PM	25.4	8/19/1996	10:27 AM	20.9
6/10/1997	11:40 AM	*	7/31/1997	11:20 AM	23.0			

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time	Average Speed
Route 137 - Route 124	00:47	31.0			
Route 124 - Underpass	01:46	32.0			
Underpass - Millstone	02:35	30.5			
Millstone - Deer Park Rd	01:09	46.5			
Deer Park Rd - Orleans TL	01:58	31.2			
Orleans TL - West Rd	01:27	24.8			
West Rd - Route 28	03:19	21.3			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Brewster/Orleans	Route 6A	28	Westbound

date of study	time of study	corridor speed
2/28/1995	2:00 PM	39.8
7/18/1995	3:30 PM	27.1
7/20/1995	3:15 PM	30.0
7/24/1995	2:15 PM	31.8
6/19/1996	1:50 PM	27.8
7/17/1996	1:17 PM	28.7
8/6/1996	2:20 PM	28.0
6/10/1997	11:25 AM	*

date of study	time of study	corridor speed
6/5/1995	2:30 PM	30.5
7/19/1995	3:15 PM	30.1
7/20/1995	3:40 PM	30.6
6/6/1996	1:35 PM	35.7
6/26/1996	9:21 AM	32.9
7/25/1996	11:24 AM	25.5
8/14/1996	1:53 PM	28.2
7/31/1997	11:00 AM	28.8

date of study	time of study	corridor speed
6/12/1995	3:24 PM	27.9
7/19/1995	2:50 PM	30.9
7/24/1995	2:53 PM	26.2
6/10/1996	12:29 PM	31.8
7/9/1996	1:25 PM	26.5
8/1/1996	1:05 PM	19.1
8/19/1996	10:14 AM	28.2

Sub Segment	Average Travel Time / Speed	
Route 28 - West Rd	03:22	20.0
West Rd - Brewster TL	01:01	33.4
Brewster TL - Deer Park Rd	01:57	31.1
Deer Park Rd - Millstone	01:20	42.1
Millstone - Underpass	02:31	31.4
Underpass - Route 124	01:46	31.9
Route 124 - Route 137	00:45	32.3

Sub Segment	Average Travel Time / Speed

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Sandwich/Bourne	Route 6A	29	Eastbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
6/8/1995	3:40 PM	39.6	6/8/1995	3:55 PM	38.1	6/8/1995	4:10 PM	37.5
7/20/1995	4:14 PM	39.6	7/20/1995	4:23 PM	38.3	6/10/1996	4:42 PM	33.2
6/20/1996	1:10 PM	33.6	6/24/1996	11:52 AM	31.6	7/10/1996	12:01 PM	35.9
7/15/1996	11:25 AM	33.2	7/24/1996	9:58 AM	36.1	7/30/1996	11:25 AM	32.3
8/8/1996	12:02 PM	31.8	8/15/1996	11:51 AM	37.5	8/19/1996	3:42 PM	31.5
6/2/1997	4:30 PM	38.8	6/4/1997	1:30 PM	41.8	6/11/1997	2:16 PM	34.1
7/2/1997	12:46 PM	*	7/10/1997	2:55 PM	31.0			

Sub Segment	Average Travel Time	Average Speed	Sub Segment	Average Travel Time / Speed
Sandwich Rd - Sandwich TL	00:31	42.1		
Sandwich TL - Tupper Rd (E)	02:01	40.1		
Tupper Rd (E) - Jarves Rd	00:59	28.9		
Jarves Rd - Main St	00:44	32.5		

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Sandwich/Bourne	Route 6A	30	Westbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
8/25/1988	11:15 AM	21.0	2/28/1995		*	6/8/1995	3:50 PM	37.6
6/8/1995	3:30 PM	35.7	6/8/1995	4:05 PM	38.1	7/20/1995	4:00 PM	40.0
7/20/1995	4:16 PM	38.4	6/10/1996	4:50 PM	34.2	6/20/1996	1:20 PM	33.6
6/24/1996	11:58 AM	35.2	7/10/1996	12:50 PM	34.0	7/15/1996	11:32 AM	34.5
7/24/1996	10:07 AM	34.5	7/30/1996	11:31 AM	34.5	8/8/1996	12:09 PM	35.2
8/15/1996	11:58 AM	35.2	6/2/1997	3:55 PM	37.6	6/4/1997	10:00 AM	36.9
6/11/1997	10:10 AM	32.3	6/30/1997	8:46 AM	35.4	7/1/1997	8:24 AM	*

Sub Segment	Average Travel Time / Speed		Sub Segment	Average Travel Time / Speed	
Main St - Jarves Rd	00:48	31.3			
Jarves Rd - Tupper Rd (E)	01:03	30.1			
Tupper Rd (E) - Bourne TL	02:07	37.7			
Bourne TL - Sandwich Rd	00:32	40.6			

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Eastham/	Route 6	31	Northbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
3/16/1995	12:00 PM	48.8	6/5/1995	1:27 PM	45.3	6/12/1995	2:22 PM	45.3
6/12/1995	1:33 PM	43.4	6/12/1995	12:30 PM	43.3	7/18/1995	2:25 PM	42.2
7/19/1995	1:38 PM	42.6	7/20/1995	1:05 PM	42.5	7/20/1995	2:20 PM	43.5
7/24/1995	1:12 PM	40.1	6/10/1996	10:57 AM	41.1	6/17/1996	1:55 PM	42.3
6/25/1996	10:40 AM	40.4	7/8/1996	1:10 PM	40.4	7/17/1996	11:46 AM	36.9
7/25/1996	10:00 AM	39.9	8/1/1996	1:37 PM	39.4	8/6/1996	12:01 PM	22.9
8/14/1996	12:32 PM	27.1	8/19/1996	10:47 AM	32.5	6/10/1997	10:20 AM	43.9
6/25/1997	11:35 AM	*						

Sub Segment	Average Travel Time	Average Speed
Orleans rotary - Samoset Rd	03:53	39.9
Samoset Rd - Nauset Rd (S)	01:12	28.4
Nauset Rd (S) - Brackett Rd	02:23	38.7
Brackett Rd - Nauset Rd (N)	01:13	41.1
Nauset Rd (N) - Wellfleet TL (drive in)	01:44	40.2
Wellfleet TL (drive in) - Marconi State Park	02:56	34.2
Marconi State Park - Lecount Hollow Rd	01:12	43.7
Lecount Hollow Rd - Main St	03:34	40.4
Main St - Wellfleet/Truro TL	03:08	42.6
Wellfleet/Truro TL - South Pamet Rd	03:00	47.4
South Pamet Rd - Route 6A	03:45	47.5

*Travel time information incomplete

Town	Corridor Name	Corridor Number	Direction
Eastham/Wellfleet	Route 6	32	Southbound

date of study	time of study	corridor speed	date of study	time of study	corridor speed	date of study	time of study	corridor speed
3/16/1995	12:00 PM	51.3	6/5/1995	1:53 PM	43.6	6/12/1995	4:47 PM	45.4
6/12/1995	1:56 PM	45.6	6/12/1995	12:56 PM	46.8	7/18/1995	2:45 PM	41.3
7/19/1995	2:05 PM	43.0	7/20/1995	1:35 PM	43.8	7/20/1995	2:50 PM	45.5
7/24/1995	1:46 PM	40.3	6/10/1996	11:28 AM	41.0	6/17/1996	2:40 PM	43.2
6/25/1996	11:23 AM	39.6	7/8/1996	2:05 PM	38.4	7/17/1996	12:48 PM	41.6
7/25/1996	10:50 AM	39.5	8/6/1996	12:50 PM	40.9	8/14/1996	1:24 PM	41.0
8/19/1996	11:41 AM	38.0	6/10/1997	11:00 AM	45.8	6/25/1997	12:05 PM	43.4

Sub Segment	Average Travel Time	Average Speed
Route 6A - South Pamet Rd	03:45	47.3
South Pamet Rd - Wellfleet/Truro TL	02:54	48.7
Wellfleet/Truro TL - Main St	03:01	43.1
Main St - Lecount Hollow Rd	03:16	42.9
Lecount Hollow Rd - Marconi State Park	01:12	43.8
Marconi State Park - Eastham TL (drive in)	02:27	38.2
Eastham TL (drive in) - Nauset Rd (N)	00:59	48.4
Nauset Rd (N) - Brackett Rd	01:21	37.9
Brackett Rd - Nauset Rd (S)	02:10	42.0
Nauset Rd (S) - Samoset Rd	00:59	32.7
Samoset Rd - Orleans rotary	03:34	43.0

CAPE COD CONGESTION MANAGEMENT SYSTEM: TRANSIT

Travel Time & Passenger Destinations by Origin

Coach of Dennis — Direction: Circular — Schedule: 6/22/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
114100	Haigis Beach	Patriots Square	20	114101	Haigis Beach	Patriots Square	20
114102	Hall Lot	Patriots Square	17	114103	Windmill Village	Patriots Square	9
114104	Windmill Village	Patriots Square	9	114105	Windmill Village	Patriots Square	9

Coach of Dennis — Direction: Circular — Schedule: 6/22/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
115107	Benny's	Yarmouth Lot	31	115104	Old Main	Yarmouth Lot	5
115105	Old Main	Yarmouth Lot	5	115106	Old Main	Yarmouth Lot	5
115100	Patriots Square	Yarmouth Lot	14	115101	Patriots Square	Yarmouth Lot	14
115102	Patriots Square	Hall St.	42	115103	Patriots Square	Swan River	30

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
119126	Kalmus Beach	Veterans Beach	1	119127	Kalmus Beach	Veterans Beach	1
119128	Kalmus Beach	Main St	24	119129	Kalmus Beach	Main St	24
119130	Kalmus Beach	P & B Terminal	15	119131	Kalmus Beach	P & B Terminal	15
119132	Kalmus Beach	P & B Terminal	15	119133	Kalmus Beach	P & B Terminal	15
119134	Kalmus Beach	P & B Terminal	15	119135	Kalmus Beach	P & B Terminal	15
119136	Kalmus Beach	P & B Terminal	15	119137	Kalmus Beach	P & B Terminal	15
119138	Kalmus Beach	P & B Terminal	15	119121	Main St	Ocean St Docks	8
119122	Main St	Ocean St Docks	8	119123	Main St	Ocean St Docks	8
119100	P&B Terminal	South St @ Sea St.	7	119101	P&B Terminal	P & B Terminal	31
119104	P&B Terminal	P & B Terminal	31	119105	P&B Terminal	P & B Terminal	31
119106	P&B Terminal	P & B Terminal	31	119102	P&B Terminal	Main St @ Pine Ave	101
119103	P&B Terminal	Main St @ Pine Ave	101	119107	P&B Terminal	P & B Terminal	31
119108	P&B Terminal	P & B Terminal	31	119109	P&B Terminal	P & B Terminal	31
119110	P&B Terminal	P & B Terminal	31	119111	P&B Terminal	P & B Terminal	31
119112	P&B Terminal	P & B Terminal	31	119113	P&B Terminal	P & B Terminal	31
119114	P&B Terminal	P & B Terminal	31	119115	P&B Terminal	P & B Terminal	31
119116	P&B Terminal	P & B Terminal	31	119117	P&B Terminal	P & B Terminal	31
119118	P&B Terminal	P & B Terminal	31	119119	P&B Terminal	P & B Terminal	31
119120	P&B Terminal	P & B Terminal	31	119124	Veterans Beach	JFK Museum	25
119125	Veterans Beach	JFK Museum	25	119139	Veterans Beach	P & B Terminal	13
119140	Veterans Beach	P & B Terminal	13				

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
120118	Kalmus Beach	P & B Terminal	13	120119	Kalmus Beach	P & B Terminal	13
120120	Kalmus Beach	P & B Terminal	13	120121	Kalmus Beach	P & B Terminal	13
120122	Kalmus Beach	Ocean St. Docks	5	120123	Kalmus Beach	Ocean St. Docks	5
120113	Main St @ Maggies Ice	Main St @ Maggies Ice	28	120107	P & B Terminal	Main St.	11
120108	P & B Terminal	Main St.	11	120109	P & B Terminal	Old County & Sea St.	25
120110	P & B Terminal	Nantucket St.	14	120111	P & B Terminal	P & B Terminal	31
120112	P & B Terminal	JFK Memorial (not	16	120100	P&B Terminal	Veterans Beach	17
120117	South St. @ Ocean	P & B Terminal	20	120124	Veterans Beach	P & B Terminal	11
120125	Veterans Beach	P & B Terminal	11	120126	Veterans Beach	P & B Terminal	11

Travel Time & Passenger Destinations by Origin

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
121107	Hyannis Marina	JFK Museum	14	121108	Hyannis Marina	JFK Museum	14
121106	P & B Terminal	Ocean St. Docks	10				

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
122119	Kalmus Beach	Main St. & School St.	9	122120	Kalmus Beach	Main St. & School St.	9
122110	Main St. (Maggies Ice	P & B Terminal	19	122111	Main St. (Maggies Ice	P & B Terminal	19
122112	Main St. (Maggies Ice	P & B Terminal	19	122113	Main St. (Maggies Ice	P & B Terminal	19
122103	P & B Terminal	Sea St. and Main	12	122104	P & B Terminal	Sea St. and Main	12
122105	P & B Terminal	Sea St. and Main	12	122108	P & B Terminal	P & B Terminal	28
122109	P & B Terminal	Main St. Restaurant	3	122114	Sea St. and Main	Main St. @ Pine	28
122115	Sea St. and Main	Main St. @ Pine	28	122116	Sea St. and Main	Main St. @ Pine	28
122117	Sea St. and Main	P & B Terminal	17	122118	Veterans Beach	Main St. (Gringo's)	26

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
123106	Hyannis Marina	P & B Terminal	4	123107	Hyannis Marina	P & B Terminal	4
123104	P & B Terminal	Old Harbor Rd	12	123105	Physic Point B & B	P & B Terminal	21

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
126100	P & B Terminal	Southwind Plaza	13	126101	P & B Terminal	P & B Terminal	29
126102	P & B Terminal	Staples (Airport Rotary)	4	126103	P & B Terminal	Cape Cod Mall	21
126104	P & B Terminal	Festival Mall	16				

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
127103	Cape Cod Mall	P & B Terminal	9	127104	Cape Cod Mall	Festival Mall	27
127104	Cape Cod Mall	Festival Mall	27	127105	Cape Cod Mall	Festival Mall	27
127106	Cape Cod Mall	Festival Mall	27	127100	P & B Terminal	Festival Mall	20
127101	P & B Terminal	Southwind Plaza	12	127102	Southwind Plaza (Stop &	CCM	10

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
128108	Festival Mall	P & B Terminal	11	128100	P & B Terminal	Festival	19
128101	P & B Terminal	Festival	19	128102	P & B Terminal	Festival	19
128103	P & B Terminal	Festival	19	128104	P&B Terminal	Cape Cod Mall	23
128105	P&B Terminal	Cape Cod Mall	23	128106	P&B Terminal	Cape Cod Mall	23
128107	P&B Terminal	Cape Cod Mall	26				

Hyannis Area Trolley — Direction: Circular — Schedule: 6/24/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
129110	Cape Cod Mall	P & B Terminal	9	129109	Cape Crossroads Apts	P & B Terminal	12
129108	Festival	P & B Terminal	15	129100	P & B Terminal	Festival Mall	16
129101	P & B Terminal	Festival Mall	16	129102	P & B Terminal	Southwind Plaza	11
129103	P & B Terminal	Cape Cod Mall	22	129104	P & B Terminal	Cape Cod Mall	22
129105	P & B Terminal	Cape Cod Mall	22	129105	P & B Terminal	Cape Cod Mall	22
129106	P & B Terminal	Cape Cod Mall	22	129107	P & B Terminal	Festival Mall	16

Travel Time & Passenger Destinations by Origin

Orleans Trolley — Direction: Circular — Schedule: 7/1/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
125104	CVS	SKAKET CORNERS	13	125102	SKAKET CORNERS	TONSET WOODS	30
125105	STOP & SHOP	TONSET WOODS	77	125103	TONSET WOODS	RT. 6A & MAIN ST.	8
125101	X-MAS TREE SHOP	CVS	1				

Orleans Trolley — Direction: Circular — Schedule: 7/1/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
124104	?	PILGRIM LAKE	14	124105	?	PILGRIM LAKE	14
124106	?	PILGRIM LAKE	14	124107	?	6A & ELDEREGE PARK	146
124108	?	ROCK HARBOR	42	124109	GENERAL STORE	RT. 6A & MAIN ST.	19
124101	STOP & SHOP	PILGRIM LAKE	14	124102	STOP & SHOP	PILGRIM LAKE	14
124103	STOP & SHOP	PILGRIM LAKE	14				

Sea Line — Direction: inbound — Schedule: 9/6/94

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
101118	CC Hospital	CC Mall	13	101104	Falmouth Bus	Mash Commons	33
101105	Falmouth Bus	Osterville Center	52	101106	Falmouth Bus	CC Hospital	74
101107	Falmouth Center	Falmouth Mall	4	101108	Falmouth Center	East Falmouth	12
101109	Falmouth Mall	Barnstable Village	93	101110	Falmouth Mall	Hyannis Bus	65
101120	Hyannis Bus	Barnstable Village	28	101121	Hyannis Bus	Barnstable Village	28
101119	Hyannis Docks	CC Mall	10	101112	Mash Commons	CC Mall	59
101111	Waquoit (Metoxit Rd)	CC Mall	59	101113	WE Rotary	Hyannis Bus	14
101114	WE Rotary	CC Mall	16	101115	WE Rotary	CC Mall	19
101116	WE Rotary	CC Mall	19	101117	WE Rotary	CC Mall	15
101100	Woods Hole	Marstons Mills	59	101101	Woods Hole	Hyannis Purity	89
101102	Woods Hole	CC Mall	98	101103	Woods Hole	CC Mall	98

Sea Line — Direction: inbound — Schedule: 6/24/95

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
104117	CC Hospital	CC Mall	12	104105	East Falmouth	CC Mall	55
104106	East Falmouth	Centerville Shops	35	104100	Falmouth Mall	CC Hospital	64
104101	Falmouth Mall	East Falmouth	16	104102	Falmouth Mall	Barnstable Village	89
104103	Falmouth Mall	Barnstable Village	80	104104	Falmouth Mall	CCCC	68
104118	Hyannis Bus	CCCC	13	104119	Hyannis Bus	Barnstable Village	22
104120	Hyannis Bus	Barnstable Village	22	104121	Hyannis Bus	Barnstable Village	22
104115	Hyannis Docks	CC Mall	12	104116	Hyannis Docks	Hyannis Bus	6
104112	Hyannis Purity	WE Rotary	3	104113	Hyannis Purity	WE Rotary	3
104114	Hyannis Purity	WE Rotary	3	104109	Mash Commons	CC Mall	46
104110	Osterville Center	WE Rotary	14	104111	Osterville Center	CCCC	35
104107	Waquoit (Metoxit Rd)	WE Rotary	37	104108	Waquoit (Metoxit Rd)	Marstons Mills	18

Sea Line — Direction: inbound — Schedule: 6/24/95

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
108116	Centerville Center	CC Mall	31	108117	Centerville Center	CC Mall	31
108114	Cotuit Landing	CC Hospital	31	108109	East Falmouth	Waquoit (Metoxit Rd)	8
108110	East Falmouth	Waquoit (Metoxit Rd)	8	108111	East Falmouth	CC Mall	74
108100	Falmouth Mall	Marstons Mills	46	108101	Falmouth Mall	CC Mall	87
108102	Falmouth Mall	Hyannis Docks	70	108103	Falmouth Mall	Mash Commons	25
108104	Falmouth Mall	CC Mall	83	108105	Falmouth Mall	Waquoit (Metoxit Rd)	9
108106	Falmouth Mall	Waquoit (Metoxit Rd)	9	108107	Falmouth Mall	Waquoit (Metoxit Rd)	8

108108	Falmouth Mall	Waquoit (Metoxit Rd)	8	108119	Hyannis Docks	CC Mall	19
108113	Mash Commons	CC Mall	56	108115	Osterville Center	CC Mall	38
108112	Waquoit (Metoxit Rd)	Barnstable Village	95	108118	WE Rotary	CC Mall	19

Sea Line Direction: inbound Schedule: 6/24/95

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
103115	CC Mall	Barnstable Village	13	103109	East Falmouth	Centerville Shops	43
103110	East Falmouth	Waquoit (Metoxit Rd)	8	103100	Falmouth Mall	Marstons Mills	37
103101	Falmouth Mall	Mash Commons	27	103102	Falmouth Mall	Waquoit (Metoxit Rd)	18
103103	Falmouth Mall	Waquoit (Metoxit Rd)	18	103104	Falmouth Mall	Waquoit (Metoxit Rd)	18
103105	Falmouth Mall	Waquoit (Metoxit Rd)	18	103106	Falmouth Mall	Waquoit (Metoxit Rd)	18
103107	Falmouth Mall	Waquoit (Metoxit Rd)	14	103108	Falmouth Mall	CCCC	80
103114	Hyannis Purity	CC Hospital	8	103113	Marstons Mills	Hyannis Bus	30
103111	Mash Commons	Hyannis Bus	39	103112	Mashpee T.H.	WE Rotary	25

Sea Line Direction: inbound Schedule: 6/24/95

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
107103	CC Hospital	CC Mall	10	107100	Falmouth Mall	CC Mall	55
107101	Falmouth Mall	CC Mall	53	107102	Mash Commons	Hyannis Docks	26

Sea Line Direction: inbound Schedule: 5/25/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
118112		P & B Terminal	23	118111	Centerville Center	Centerville Shopping	1
118105	Mahoney's	Cotuit Landing	17	118104	Maravista Ave	Waquoit (Metoxit Rd)	9
118106	Osterville Center	P & B Terminal	31	118107	Osterville Center	P & B Terminal	31
118108	Osterville Center	P & B Terminal	31	118109	Osterville Center	Old Colony Rd	20
118110	Osterville Center	Old Colony Rd	20	118101	Teaticket (M all)	East Falmouth	9
118102	Teaticket (M all)	East Falmouth	9	118103	Teaticket (M all)	P & B Terminal	68
118115	WE Rotary	Pleasant St	14	118113	West Side Apts.	P & B Terminal	20
118114	West Side Apts.	P & B Terminal	20				

Sea Line Direction: outbound Schedule: 9/6/94

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
100104	CC Hospital	East Falmouth	56	100108	Cotuit Landing	Falmouth Center	41
100113	East Falmouth	Falmouth Bus	20	100114	East Falmouth	Falmouth Mall	5
100100	Hyannis Bus	Falmouth Bus	81	100101	Hyannis Bus	Woods Hole	90
100102	Hyannis Docks	WE Rotary	7	100103	Hyannis Docks	Stop & Shop	67
100105	Hyannis Purity	Cotuit Landing	28	100107	Marstons Mills	Cotuit Landing	6
100109	Mash Commons	Falmouth Mall	20	100110	Waquoit (Metoxit Rd)	Falmouth Mall	14
100111	Waquoit (Metoxit Rd)	Falmouth Mall	14	100112	Waquoit (Metoxit Rd)	Falmouth Mall	17
100106	WE Rotary	Hyannis Purity	5				

Sea Line Direction: outbound Schedule: 6/24/95

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
105100	Barnstable Village	Hyannis Bus	23	105101	CC Mall	East Falmouth	68
105109	East Falmouth	Falmouth Mall	13	105102	Hyannis Bus	Falmouth Mall	72
105103	Hyannis Purity	Falmouth Mall	51	105107	Mash Commons	East Falmouth	9
105104	Stop & Shop	Falmouth Mall	21	105105	Stop & Shop	Falmouth Mall	21
105106	Stop & Shop	Falmouth Mall	21	105108	Waquoit (Metoxit Rd)	Falmouth Mall	15

Sea Line Direction: outbound Schedule: 6/24/95

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
109105	CC Hospital	East Falmouth	46	109101	CC Mall	Hyannis Purity	30

Travel Time & Passenger Destinations by Origin

109102	CC Mall	Hyannis Docks	14	109103	CC Mall	Hyannis Bus	8
109104	CC Mall	Osterville Center	41	109100	CCCC	Centerville Shops	43
109108	East Falmouth	Falmouth Mall	6	109107	Hyannis Purity	Falmouth Mall	46
109106	WE Rotary	Hyannis Purity	9				

Sea Line — Direction: outbound — Schedule: 6/24/95

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
102100	Barnstable Village	Hyannis Bus	25	102109	CC Hospital	Hyannis Purity	13
102103	CC Mall	Hyannis Purity	29	102104	CC Mall	Osterville Center	42
102105	CC Mall	Osterville Center	42	102101	CCCC	CC Mall	13
102102	CCCC	Hyannis Purity	38	102113	East Falmouth	Falmouth Mall	8
102106	Hyannis Bus	East Falmouth	61	102107	Hyannis Bus	Falmouth Mall	72
102108	Hyannis Bus	Falmouth Mall	72	102110	WE Rotary	Marstons Mills	23
102111	WE Rotary	Marstons Mills	21	102112	WE Rotary	Osterville Center	12

Sea Line — Direction: outbound — Schedule: 6/24/95

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
106101	CC Mall	WE Rotary	29	106102	CC Mall	Falmouth Mall	85
106103	CC Mall	Hyannis Purity	32	106104	CC Mall	Falmouth Mall	85
106105	CC Mall	Falmouth Mall	85	106106	CC Mall	East Falmouth	76
106100	CCCC	Osterville Center	59	106111	Cotuit Landing	East Falmouth	16
106112	Cotuit Landing	East Falmouth	16	106113	Cotuit Landing	East Falmouth	16
106116	East Falmouth	Falmouth Mall	8	106117	East Falmouth	Falmouth Mall	8
106118	East Falmouth	Falmouth Mall	8	106119	East Falmouth	Falmouth Mall	8
106107	Hyannis Bus	Falmouth Mall	78	106108	Hyannis Bus	Hyannis Purity	27
106109	Hyannis Bus	Falmouth Mall	77	106110	Hyannis Purity	Osterville Center	15
106114	Mash Commons	East Falmouth	13	106115	Mash Commons	Falmouth Mall	17

Sea Line — Direction: outbound — Schedule: 5/25/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
117106	Hyannis Docks	Federated	9	117107	Hyannis Docks	Post Office-Hyannis	10
117109	Mash Commons	Stop & Shop	18	117101	P&B Terminal	Mash Commons	51
117102	P&B Terminal	Teaticket (Mall)	74	117103	P&B Terminal	Stop & Shop	69
117104	P&B Terminal	Stop & Shop	69	117105	P&B Terminal	Teaticket (Mall)	74
117108	Post Office-Hyannis	Stop & Shop	53	117111	Seacoast Shores	Oxbow (Brick Kiln)	6
117110	Waquoit (Metoxit Rd)	East Falmouth	11				

The Villager — Direction: inbound — Schedule: 6/22/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
110102	Barnstable Rd	CCCC	15	110100	P&B Terminal	Friendly's	12
110101	P&B Terminal	CCCC	19	110103	P&B Terminal	IHOP	10
110104	P&B Terminal	Uno's	4	110105	P&B Terminal	Bearse's Way	13

The Villager — Direction: outbound — Schedule: 6/22/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
111100	Barnstable Village	CC Mall	19	111102	CC Mall	P & B Terminal	8
111103	CC Mall	P & B Terminal	8	111104	CC Mall	P & B Terminal	8
111105	CC Mall	P & B Terminal	8	111106	CC Mall	P & B Terminal	8
111107	CC Mall	P & B Terminal	8	111108	CC Mall	P & B Terminal	6
111109	CC Mall	P & B Terminal	6	111110	CC Mall	P & B Terminal	6
111101	CCCC	P & B Terminal	19				

Travel Time & Passenger Destinations by Origin

Yarmouth Easy Shuttle — Direction: C W — Schedule: 6/22/96

Pax I.D.	Origin	Destination	Minutes
113100	P&B Terminal	Yarmouth Municipal Lot	17

Yarmouth Easy Shuttle — Direction: C W — Schedule: 6/22/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
116103	College St.	P & B Terminal	19	116112	Higgins Crowell	P & B Terminal	17
116113	Higgins Crowell	P & B Terminal	17	116114	Higgins Crowell	P & B Terminal	17
116115	Higgins Crowell	P & B Terminal	17	116104	X-mas Tree Shop	P & B Terminal	17
116105	X-mas Tree Shop	P & B Terminal	17	116106	X-mas Tree Shop	P & B Terminal	17
116107	X-mas Tree Shop	P & B Terminal	17	116108	X-mas Tree Shop	P & B Terminal	17
116109	X-mas Tree Shop	P & B Terminal	17	116110	X-mas Tree Shop	P & B Terminal	17
116111	X-mas Tree Shop	P & B Terminal	17	116101	Yarmouth Lot	P & B Terminal	35
116102	Yarmouth Lot	Sportsworld	12				

Yarmouth Easy Shuttle — Direction: C W — Schedule: 6/22/96

Pax I.D.	Origin	Destination	Minutes	Pax I.D.	Origin	Destination	Minutes
112100	P&B Terminal	Wendward Way	9	112101	P&B Terminal	Wendward Way	9
112102	P&B Terminal	Yarmouth Municipal Lot	22	112103	P&B Terminal	Yarmouth Municipal Lot	22
112104	P&B Terminal	Pond St	20	112109	P&B Terminal	Yarmouth Municipal Lot	20
112110	P&B Terminal	Yarmouth Municipal Lot	20	112111	P&B Terminal	Yarmouth Municipal Lot	20
112112	P&B Terminal	Yarmouth Municipal Lot	20	112105	P&B Terminal	Pond St	20
112106	P&B Terminal	Pond St	20	112107	P&B Terminal	Pond St	20
112113	Snug Harbor Motel	Appleby Rd.	6				

Cape Cod Congestion Management System: Park and Ride Lots

Barnstable

Max %Full 127% Avg % Full 97%

		Vehicles		Spaces		% Full			Vehicles		Spaces		% Full
/13/95-Tue	15:00	228	/	225	=	101.3%	6/14/95-Wed	8:20	208	/	225	=	92.4%
6/15/95-Thu	10:00	198	/	225	=	88.0%	6/20/95-Tue	8:30	207	/	225	=	92.0%
21/95-Wed	7:50	190	/	225	=	84.4%	6/22/95-Thu	7:50	190	/	225	=	84.4%
6/27/95-Tue	8:30	201	/	225	=	89.3%	6/28/95-Wed	8:30	209	/	225	=	92.9%
/5/95-Wed	7:00	190	/	225	=	84.4%	7/6/95-Thu	8:00	198	/	225	=	88.0%
/11/95-Tue	7:50	199	/	225	=	88.4%	7/12/95-Wed	7:55	208	/	225	=	92.4%
7/13/95-Thu	7:50	199	/	225	=	88.4%	7/18/95-Tue	9:00	213	/	225	=	94.7%
/19/95-Wed	7:45	196	/	225	=	87.1%	7/20/95-Thu	8:00	200	/	225	=	88.9%
6/5/96-Wed	13:15	224	/	215	=	104.2%	6/10/96-Mon	10:20	218	/	215	=	101.4%
/13/96-Thu	13:50	238	/	215	=	110.7%	6/17/96-Mon	9:30	182	/	215	=	84.7%
6/18/96-Tue	13:45	228	/	212	=	107.5%	6/24/96-Mon	10:00	200	/	212	=	94.3%
/1/96-Mon	10:45	192	/	221	=	86.9%	7/9/96-Tue	10:40	230	/	221	=	104.1%
7/10/96-Wed	9:40	231	/	221	=	104.5%	7/11/96-Thu	14:30	240	/	221	=	108.6%
/15/96-Mon	9:42	215	/	221	=	97.3%	7/19/96-Fri	9:30	195	/	221	=	88.2%
7/22/96-Mon	14:45	224	/	221	=	101.4%	7/24/96-Wed	12:15	229	/	221	=	103.6%
/25/96-Thu	12:05	242	/	221	=	109.5%	7/26/96-Fri	8:35	170	/	221	=	76.9%
7/30/96-Tue	14:15	244	/	210	=	116.2%	8/8/96-Thu	10:20	256	/	221	=	115.8%
8/9/96-Fri	9:20	161	/	221	=	72.9%	8/13/96-Tue	10:15	224	/	221	=	101.4%
8/27/96-Tue	14:10	222	/	221	=	100.5%	8/28/96-Wed	9:25	198	/	221	=	89.6%
8/30/96-Fri	12:00	170	/	221	=	76.9%	5/28/97-Wed	12:30	269	/	221	=	121.7%
5/29/97-Thu	10:30	271	/	221	=	122.6%	5/30/97-Fri	13:20	219	/	221	=	99.1%
/10/97-Tue	13:12	273	/	221	=	123.5%	6/13/97-Fri	11:30	226	/	221	=	102.3%
6/19/97-Thu	10:30	281	/	221	=	127.1%	6/30/97-Mon	16:55	230	/	221	=	104.1%
7/2/97-Wed	09:42	243	/	221	=	110.0%	7/3/97-Thu	11:30	190	/	221	=	86.0%
/28/97-Thu	10:35	163	/	221	=	73.8%	6/11/99-Fri	11:00	244	/	308	=	79.2%
6/21/99-Mon	12:30	246	/	308	=	79.9%							

Harwich

Max %Full 35% Avg % Full 15%

/13/96-Thu	13:00	0	/	75	=	0.0%	6/25/96-Tue	9:40	1	/	75	=	1.3%
7/8/96-Mon	10:30	3	/	75	=	4.0%	7/17/96-Wed	11:15	4	/	75	=	5.3%
7/25/96-Thu	11:45	5	/	75	=	6.7%	8/14/96-Wed	14:15	8	/	75	=	10.7%
/19/96-Mon	10:30	0	/	75	=	0.0%	10/10/96-Thu	11:15	12	/	75	=	16.0%
5/28/97-Wed	12:30	14	/	75	=	18.7%	5/28/97-Wed	13:45	21	/	75	=	28.0%
5/30/97-Fri	12:40	9	/	75	=	12.0%	6/19/97-Thu	13:10	16	/	75	=	21.3%

Cape Cod Congestion Management System: Park and Ride Lots

		Vehicles		Spaces		% Full			Vehicles		Spaces		% Full
6/30/97-Mon	09:45	15	/	75	=	20.0%	8/8/97-Fri	1235	17	/	75	=	22.7%
/29/97-Wed	15:00	26	/	75	=	34.7%	8/26/98-Wed	7:45	8	/	75	=	10.7%
8/27/98-Thu	9:00	15	/	75	=	20.0%	6/4/99-Fri	9:00	15	/	75	=	20.0%
14/99-Mon	11:30	15	/	75	=	20.0%	6/25/99-Fri	8:30	17	/	75	=	22.7%

Sagamore Max %Full 96% Avg % Full 83%

24/95-Wed	8:00	313	/	377	=	83.0%	5/25/95-Thu	8:05	302	/	377	=	80.1%
5/30/95-Tue	8:00	294	/	377	=	78.0%	5/31/95-Wed	8:00	315	/	377	=	83.6%
/1/95-Thu	8:00	310	/	377	=	82.2%	6/6/95-Tue	8:10	328	/	377	=	87.0%
6/8/95-Thu	7:40	305	/	377	=	80.9%	6/12/96-Wed	15:15	335	/	377	=	88.9%
/13/96-Thu	9:45	355	/	377	=	94.2%	6/17/96-Mon	10:05	290	/	377	=	76.9%
/20/96-Thu	13:00	325	/	377	=	86.2%	6/21/96-Fri	9:10	268	/	377	=	71.1%
24/96-Mon	12:00	344	/	377	=	91.2%	6/28/96-Fri	8:40	268	/	377	=	71.1%
/1/96-Mon	16:53	272	/	377	=	72.1%	7/10/96-Wed	13:00	335	/	377	=	88.9%
7/15/96-Mon	11:45	337	/	377	=	89.4%	7/19/96-Fri	9:00	246	/	377	=	65.3%
24/96-Wed	9:45	326	/	377	=	86.5%	7/30/96-Tue	11:45	352	/	377	=	93.4%
8/8/96-Thu	12:20	336	/	377	=	89.1%	8/9/96-Fri	8:50	273	/	377	=	72.4%
/15/96-Thu	12:15	340	/	377	=	90.2%	8/27/96-Tue	14:35	342	/	377	=	90.7%
6/2/97-Mon	10:45	363	/	377	=	96.3%	6/4/97-Wed	10:30	345	/	377	=	91.5%
/11/97-Wed	10:15	342	/	377	=	90.7%	6/11/97-Wed	14:05	345	/	377	=	91.5%
6/13/97-Fri	09:05	357	/	377	=	94.7%	6/30/97-Mon	09:05	352	/	377	=	93.4%
/2/97-Wed	13:00	338	/	377	=	89.7%	8/20/98-Thu	18:00	168	/	377	=	44.6%
6/4/99-Fri	8:10 AM	286	/	377	=	75.9%	6/23/99-Wed	8:00	283	/	377	=	75.1%

Cape Cod
Traffic Counting Report 2000

• Extract

INTRODUCTION

This report summarizes traffic counts conducted by the Cape Cod Commission between 1990 and 2000. Traffic count locations were selected based on recommendations from the Massachusetts Highway Department (MHD), town officials, members of the Cape Cod Joint Transportation Committee (CCJTC), and the Commission's transportation staff. Since 1989, traffic counts have been conducted with computer-compatible GK5000 counters. These counters have dual input capability that enables the collection of directional traffic volumes, vehicle speeds, or vehicle classification for a particular study. Field data from the counters were transferred directly to main the computer database. Earlier counts were conducted with "paper-punch" traffic counting equipment. Late in the summer of 1993 four new Timemark Delta II counters were purchased. These counters are also computer compatible and have the same capabilities as the GK5000 counters, plus additional features such as the ability to simultaneously conduct a speed, classification, and volume study for a particular study location. Just last year, four more Timemark Delta III counters were purchased to begin replacing the older GK counters. The new Delta III counters also have the ability to perform speed, classification, and volume studies. The newer counters still function on the existing CCC counting software and have been a helpful addition to the fleet. A total of eleven automatic traffic counters are now used to collect traffic data.

Since the traffic counting program began in 1984, the Commission has obtained 2,781 weekday counts at 927 different locations. In 2000, 161 counts were performed at 152 different locations. Directional counts were conducted at most of the locations where possible. Directional traffic volume information is important when performing traffic studies because direction of travel can vary significantly by time of day. Special requests such as vehicle speed and classification studies were also undertaken during the summer. A summary table of the traffic counting program's activities is as follows:

TABLE 1 - TRAFFIC COUNTING ACTIVITY

Year	New Locations	Total Counts
1984	73	74
1985	55	78
1986	80	143
1987	175	280
1988	93	175
1989	63	207
1990	44	167
1991	42	105
1992	3	99
1993	6	98
1994	53	217
1995	46	212
1996	47	223
1997	32	166
1998	42	209
1999	39	167
2000	34	161
TOTALS	**927**	**2,781**

USING THE TRAFFIC COUNTING DATA

The traffic counts for each town are contained in the individual data sets by town. At locations where directional volumes were obtained, the information is first provided for the total of both directions, and the directional volumes follow. Counts performed on numbered routes are listed first in numerical order, then named streets are listed in alphabetical order. If a roadway has more than one name (for example, Central Road and North Great Neck Road in the Town of Mashpee), it may be necessary to look under both names for the desired information. Traffic counts which are followed by an asterisk (*) were performed by the MHD or another agency (e.g. the Town of Barnstable's engineering department). These counts are primarily located on Route 6 and roads of local interest. Each column of data is arranged as follows:

TOWN

Beginning with Bourne in the Upper Cape area and ending with Provincetown in the Lower Cape, the towns are listed geographically to provide continuity for the convenience of the reader.

ROUTE

The roadway on which the traffic count was taken.

LOCATION

The orientation of the location with respect to the nearest notable geographic detail. For example: "Rt 3A S of Bour/Plym TL" is shorthand for "Route 3A, south of the Bourne/Plymouth town line." Note that the town line counts are listed twice in the report. For each count location taken at a town line, the count location is located under both town names. This allows for the data to be analyzed more effectively. For a complete listing of the shorthand terms please refer to the Glossary of Abbreviations.

BEGIN DATE and END DATE

These are the dates during which each traffic count was taken. The counts for each location are shown in reverse chronological order, with the most recent count shown first. All locations are not counted every year and some are counted more than once a year. Generally, counts are conducted for a 48-hour period, although some cover longer or shorter periods. Most counts are conducted Monday through Friday during the summer season, in order to monitor summer weekday traffic.
When comparing counts taken in different years, it is important to consider seasonal fluctuations as well as year to year growth. For example, a July 1992 count will generally be higher than an April 1991 count, mainly because of the seasonal differences. Even the comparison of a count performed in July 1992 to June 1991 could be misleading due to the increase in traffic experienced during the month of July. On the other hand, if a count performed in April 1992 shows an increase over a count performed in July 1991, for example, the effect may be a result of area growth.

Other variables to consider when comparing counts are the days of the week in which the counts were performed. Although few counts are performed on Saturdays and Sundays, a comparison of counts in which one was performed over a weekend and the other was obtained during weekdays could be misleading. Therefore, when estimating annual growth in traffic in an area, it is most valid to compare counts taken at the location at the same time of year and on the same type of days (weekday or weekend).

The Commission has developed a weekend-only traffic database and as this data set grows comparison of weekend counts can also be used for estimating growth.

WEATHER

Weather conditions may influence traffic volumes on Cape Cod. Cloudy days often contribute to increased traffic congestion except on beach access roads. On rainy or cloudy days, people engage in sightseeing or shopping rather than spending time at home or a favorite sunny day location. In the data tables, brief descriptions of weather conditions during the count period are given. This information should be regarded with caution, as weather conditions may change considerably throughout a single day on Cape Cod. Of all the data provided in the tables, this category is the most subjective.

DIRECTION

The Direction identifies the direction of travel for the traffic on the roadway which the data on that line summarizes. The data for the sum of the two directions is listed on the "Total" line. If the count was done on a one-way road, only data for the one direction is listed. If the traffic counter did not separate the counts into the directional movements, only the data for the summation of both directions is listed.

RAW ADT

The Raw Average Daily Traffic (Raw ADT) is the average 24-hour traffic volume for the time period monitored. Note that all CCC counts are based on axle counts. For example, a 5-axle truck is counted as 2.5 vehicles. This is reasonable since trucks are larger, heavier and slower than cars and reduce the capacity of a given roadway.

PEAK HOUR DATA: Vol, Hour, and Date&Day

The Peak Hour is the highest one-hour traffic volume observed during the period counted. The Volume is listed first, then the hour of the day using 24-hour time (e.g. "16" means that the peak hour occurred beginning at 4 p.m. and ending at 5 p.m.), then the date and day of the week in which the peak occurred. For count periods which include both week days and weekends, the hour reported is usually from the weekday.

This information is significant for transportation planning because it indicates the highest traffic demands on a roadway and how close a roadway is to its capacity. The two-way peak hour volume is equal to the sum of the two directional peak hour volumes if these occur during the same hour, otherwise the two-way volume is slightly

lower than the sum of the directional. Note that these values are actual observations and are not seasonally adjusted.

Comparisons of peak hour traffic volumes and average daily traffic volumes may provide information on the capacity of a roadway segment. For example, if counts taken in different years or during different months of the same year indicate a change in average daily traffic without a corresponding change in peak hour traffic, this is an indication of capacity constraints during peak times.

FOUR-FIVE

This is the average traffic volume recorded during the count period which fell between 4-5 PM. It has been included as an aid to transportation planners and engineers. For the years 1984-1993, it was found that, cape-wide, the peak hour for the entire day generally fell between the hours of 4-5 PM. This was based upon the entire database. As with the other categories of data, the 4-5 PM volume is given for the total of both directions first, and then for each corresponding direction. In many cases, the 4-5 PM volume is also the peak hour for the location. The two-way 4-5 PM average volume is equal to the sum of the two directional 4-5 PM average volumes. In addition to planning and engineering purposes, these data are also useful in comparing the peak hour and the 4-5 PM volume for a particular location.

AADT

The annual average daily traffic (AADT) is calculated from the Raw ADT by multiplying by a "seasonal adjustment factor" for the month of the count. These factors have been supplied by MHD based on six permanent traffic counting stations on Cape Cod and one in Plymouth. Note that the year-round ADT is only an estimate, based on seasonal changes in traffic volumes at these six locations. A description of the techniques used by MHD to develop the seasonal adjustment may be found in the following section.

WEEKEND TRAFFIC COUNTS

A new feature of last year's report was a listing of traffic counts taken during various weekends and holidays over the years. This weekend database continues to grow each year and Is Included as Appendix B. Many of the headings are similar to those

discussed above. The counts presented are representative of specific days and dates (Saturdays, Sundays, and Holidays) and therefore have not be averaged or adjusted.

MASS HIGHWAY DATA & SEASONAL ADJUSTMENT FACTORS

The MHD collects year-round traffic volumes from the following permanent traffic counting stations:

- Route 6 east of Exit 5
- Route 6 at the Sagamore Bridge
- Route 28 at the Bourne Bridge
- Route 28 in Barnstable, east of Main Street in Cotuit
- Route 28 in Yarmouth, east of Higgins Crowell Road
- Route 3 near the Bourne/Plymouth town line.

For the convenience of the reader, the annual average daily traffic and July average daily traffic for these stations is presented in Table 3 on the next page (note: data are not available for all years). Based on the data collected in 1999 (2000 factors not available yet), the following Monthly adjustment factors are derived:

TABLE 2 - MOST RECENT MONTHLY ADJUSTMENT FACTORS

Month	Adj. Factor	Month	Adj. Factor
January	1.37	July	0.76
February	1.29	August	0.77
March	1.23	September	0.94
April	1.09	October	0.99
May	0.96	November	1.10
June	0.87	December	1.15

These factors provide an indication of relative traffic volumes throughout the year. For example, weekday traffic in January is approximately half the weekday traffic in July. Note that these adjustment factors are based on 1999 data, as the 2000 count factors have yet to be reported by the MHD. There are a few other problems with the factors as well. The permanent stations are on state highways; seasonal traffic fluctuations may be very different on local roads and streets. Also, none of the permanent stations are located east of Yarmouth. This is significant because seasonal traffic fluctuations are generally greater in areas with higher seasonal population changes, such as the Outer Cape. For a complete listing of all the factors, the Table 4 shows the monthly adjustment factors used to multiply the Raw ADT to determine the AADT.

Table 3 - Permanent Traffic Counting Stations

Average Daily Traffic:	Rt 6 E of Exit 5 Yr.Round/Summer		Rt 3 N of Bourne TL Yr.Round/Summer		Rt 28 N of Bourne Br Yr.Round/Summer		Rt 6 E of Sagamore Br Yr.Round/Summer		Rt 28 E of Higgins Crowell Rd Yr.Round/Summer		Rt 28 E of Main St Cotuit Yr.Round/Summer	
1984	31426	49500	20849	31212	26179	41571	34244	50441	17569	21193	13709	17893
1985	33836	53043	23227	32466	26136	36800	36877	53441	18158	21861	15016	20010
1986	36452	53890	27743	40461	26364	35035	40870	57224	21068	27190	16939	23569
1987	37228	55040	27615	42757	29675	39300	38078	56575	21286	27714	17510	22910
1988	38646	57002	27908	40154	32735	46709	39822	54556	N/A	N/A	18681	24210
1989	38888	58217	28474	41266	33936	49137	40814	53024	N/A	N/A	18300	23467
1990	39535	57585	28509	39930	34818	49010	46571	65240	N/A	N/A	18087	23501
1991	39156	55072	28747	38652	33926	48194	45667	62564	N/A	N/A	18218	23668
1992	39752	59549	29510	40893	34899	49120	N/A	N/A	N/A	N/A	18504	24113
1993	39714	60111	N/A	N/A	35413	49753	N/A	N/A	N/A	N/A	18709	24229
1994	N/A	N/A	N/A	N/A	36406	52078	N/A	N/A	N/A	N/A	19299	24837
1995	42689	61506	30832	42070	38885	52503	47994	67385	19352	24782	19800	24649
1996	44530	64672	31074	41377	39221	54196	48071	66278	19730	26241	19619	24697
1997	45962	66627	31843	41793	40216	56204	49717	66513	20300	27116	20200	24571
1998	48524	69195	32873	42656	42427	58063	51242	69195	21040	27422	N/A	N/A
1999	50257	71579	32990	41797	43101	59595	52573	68833	21369	27530	N/A	N/A
2000		72163		41625		56892		68997		26747	N/A	N/A

Note: Data are not available for all years

Table 4 - Montly Adjustment Factors for Cape Cod

Source: MassHighway

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1983	1.53	1.51	1.30	1.15	0.98	0.82	0.65	0.66	0.87	1.07	1.23	1.30
1984	1.55	1.36	1.46	1.12	1.03	0.85	0.73	0.73	0.94	1.07	1.14	1.24
1985	1.31	1.26	1.17	1.07	0.96	0.92	0.84	0.83	0.97	0.97	1.14	1.16
1986	1.35	1.31	1.21	1.09	1.05	0.84	0.73	0.75	0.96	1.04	1.17	1.22
1987	1.40	1.39	1.23	1.10	0.94	0.85	0.71	0.73	0.96	1.02	1.18	1.25
1988	1.38	1.30	1.21	1.10	0.99	0.83	0.72	0.73	0.91	1.02	1.11	1.15
1989	1.37	1.38	1.25	1.13	0.99	0.89	0.72	0.73	0.94	1.03	1.15	1.17
1990	1.31	1.26	1.16	1.06	0.96	0.85	0.73	0.74	0.94	0.99	1.10	1.22
1991	1.39	1.30	1.22	1.08	0.94	0.87	0.76	0.77	0.95	1.02	1.12	1.20
1992	1.37	1.32	1.29	1.08	0.94	0.87	0.75	0.76	0.90	1.01	1.14	1.21
1993	1.35	1.30	1.24	1.07	0.92	0.85	0.75	0.75	0.90	0.99	1.10	1.17
1994	1.35	1.31	1.25	1.06	0.93	0.86	0.73	0.74	0.89	0.97	1.09	1.15
1995	1.36	1.33	1.24	1.07	0.97	0.86	0.75	0.75	0.90	0.99	1.10	1.19
1996	1.41	1.30	1.22	1.07	0.96	0.86	0.75	0.75	0.91	0.99	1.10	1.19
1997	1.38	1.29	1.22	1.10	0.96	0.86	0.76	0.75	0.92	0.99	1.10	1.19
1998	1.39	1.27	1.23	1.11	0.95	0.87	0.76	0.76	0.93	0.99	1.10	1.16
1999	1.37	1.29	1.23	1.09	0.96	0.87	0.76	0.77	0.94	0.99	1.10	1.15
2000	1.37	1.29	1.23	1.09	0.96	0.87	0.76	0.77	0.94	0.99	1.10	1.15

Note: Factors for the most recent year may be based on the preceding year until complete data are available.

RESULTS & CAPE COD COMMISSION DATA

Based on all available summer traffic counts (taken in July or August), average daily traffic decreased approximately 1.26% from 1999 to 2000. Over the ten year period 1990-2000, summer traffic Cape-wide grew about 1.5% annually for a total of 16.05%. Table 5 shows growth rates for ten-year periods for various sub-regions of the Cape.

TABLE 5 - 1990-2000 CAPE COD SUMMER TRAFFIC GROWTH

Region	# of Comparisons	Total Growth	Average Annual Growth	95% Confidence Interval
All Roads	221	16.05%	1.5%	±0.29
Upper	49	16.91%	1.57%	±0.42
Mid	47	16.78%	1.56%	±0.53
Lower	74	21.17%	1.93%	±0.53
Outer	51	7.96%	.76%	±0.89

Note:

"Upper" = Bourne, Sandwich, Falmouth, Mashpee

"Mid" = Barnstable, Yarmouth, Dennis

"Lower" = Harwich, Chatham, Brewster, Orleans

"Outer" = Eastham, Wellfleet, Truro, Provincetown

To calculate the growth rates for each **Region**, a growth curve was calculated from count data for each eligible count location. Using adjustments for timeframe and average daily traffic, these curves were then combined to form the growth rates, (**Total Growth** and **Average Annual Growth**). The **# of Comparisons** represents the number of eligible count locations used to determine the growth rates. The **95% Confidence Interval** represents the range above and below the Average Annual Growth rate for which we are 95% certain that the actual growth rate falls. These growth rates should be used with caution since for the most part, they are based on 48 hour "snapshots" where counts may not occur on the same date each year. Variables such as weather changes and special events may also reflect different traffic levels for each year.

The appendices contain traffic count data collected since 1990. Appendix A includes a summary of all of counts obtained in 2000. Appendix B includes a listing of counts taken on weekends. Appendix C makes up the body of the Report. All counts obtained from 1990 to 2000 are arranged geographically town by town (starting in the Upper Cape area at Bourne and ending in the Outer Cape area at Provincetown).

Travel Demand Forecasting

- Summary Analysis Tables

Cape Cod Commission

Travel Demand Forecasting Results

NETWORK	VMT	VHT	NETWORK VOC		NETWORK NOx		CENTER LINE MILES	NETWORK SPEED
			g	Kg	g	Kg		
1997 Base	572,203.0	25,468.0	1,124,518.0	1,124.5	1,408,424.0	1,408.4	1036	22.5
2003 No-Build	603,150.0	29,186.0	620,193.0	620.2	1,037,594.0	1,037.6	1035	20.7
2003 Build	601,470.0	28,914.0	615,468.0	615.5	1,034,119.0	1,034.1	1037	20.8
2025 No Build (Network from 1997)	682,631.0	42,200.0	570,111.0	570.1	1,017,012.0	1,017.0	1036	16.2
2025 No Build (Network from 2003 Build)	681,769.0	42,183.0	569,842.0	569.8	1,016,384.0	1,016.4	1037	16.2
2025 Build-Exit 6.5	641,844.0	39,300.0	522,212.0	522.2	955,785.0	955.8	1039	16.3
2025 Build-Rt 132 BLVD	639,923.0	39,136.0	518,909.0	518.9	952,781.0	952.8	1039	16.4
2025 RTP-Build All-Network [Exit 6.5 and Rt 132 BLVD]	679,920.0	42,085.0	566,625.0	566.6	1,013,557.0	1,013.6	1041	16.2
2025 Sagamore Flyover	689,222.0	42,979.0	580,116.0	580.1	1,028,453.0	1,028.5	1039	16
2025 Bourne Rotary Flyover	683,677.0	42,329.0	572,122.0	572.1	1,019,382.0	1,019.4	1038	16.2
2025 Sagamore and Bourne Flyovers	692,629.0	43,553.0	587,026.0	587.0	1,034,043.0	1,034.0	1040	15.9
2025 Exit One On-Ramp Closure	684,607.0	42,432.0	573,593.0	573.6	1,020,592.0	1,020.6	1037	16.1
2025 Exit One On-Ramp Relocation	685,349.0	42,377.0	573,201.0	573.2	1,021,406.0	1,021.4	1038	16.2
2025 Southside Connector	694,834.0	43,451.0	587,897.0	587.9	1,040,462.0	1,040.5	1043	16
2025 3rd Barrel for General MacArthur Boulevard	686,702.0	42,028.0	568,046.0	568.1	1,027,737.0	1,027.7	1045	16.3

Cape Cod Commission

Travel Demand Forecasting Results

Data By Functional Class

FUNCTIONAL CLASS	VMT	VHT	NETWORK VOC grams	NETWORK NOx grams	CENTER LINE MILES
2025 RTP No Build Network (03 Network)					
2	213,659	8,057	162,097	321,220	117
3	143,905	5,076	104,148	211,297	112
5	196,283	6,830	141,900	284,744	363
6	45,813	1,630	34,109	65,985	188
7	5,466	299	5,418	8,189	11
10	25,436	11,029	24,722	36,876	128
2025 RTP Build Network Exit 6.5					
2	198,055	6,715	140,089	297,750	118
3	143,297	4,884	101,660	209,841	112
5	179,850	5,941	126,153	260,074	363
6	40,319	1,405	29,612	58,005	189
7	6,032	280	5,399	8,863	14
10	23,081	10,825	21,944	33,180	127
2025 RTP Build Network Rt 132 BLVD					
2	199,852	6,799	141,363	300,505	119
3	143,536	4,901	101,925	210,293	112
5	177,828	5,850	124,305	257,065	364
6	40,016	1,387	29,267	57,544	189
7	5,199	278	5,049	7,771	11
10	22,384	10,672	19,705	31,695	127
2025 RTP Build All Network (Exit 6.5 and 132)					
2	216,210	8,256	164,888	325,596	119
3	143,252	5,006	103,230	210,163	112
5	193,439	6,613	138,420	280,267	363
6	44,402	1,579	33,038	63,975	188
7	6,084	297	5,627	9,003	14
10	25,374	11,071	23,982	36,521	128
2025 Sagamore Flyover					
2	217,634	8,678	170,776	328,585	118
3	144,821	5,079	104,507	212,567	112
5	198,031	6,830	142,415	287,066	363
6	45,554	1,589	33,455	65,526	188
7	6,292	449	6,535	9,471	13
10	25,684	11,092	24,959	37,164	128
2025 Bourne Rotary Flyover					
2	213,971	8,106	162,767	321,853	117
3	145,017	5,246	106,482	213,292	112
5	196,700	6,786	141,665	285,121	363
6	45,741	1,609	33,801	65,821	188
7	5,746	350	6,041	8,690	12
10	25,259	10,970	23,902	36,483	128
2025 Sagamore and Bourne Flyovers					
2	217,324	8,596	169,791	327,743	118
3	146,243	5,306	107,528	215,087	112
5	198,612	6,844	142,890	287,820	363
6	46,576	1,662	34,684	67,120	188
7	6,539	629	7,828	10,050	14
10	26,102	11,252	26,849	38,122	128

Cape Cod Commission

Travel Demand Forecasting Results

Data By Functional Class

FUNCTIONAL CLASS	VMT	VHT	NETWORK VOC grams	NETWORK NOx grams	CENTER LINE MILES
2025 Exit One On-Ramp Closure					
2	216,020	8,306	165,803	325,097	117
3	144,210	5,117	104,765	211,792	112
5	196,256	6,759	141,378	284,380	363
6	46,205	1,675	34,780	66,650	188
7	5,477	302	5,442	8,208	11
10	25,271	11,013	23,989	36,456	128
2025 Exit One Ramp Relocation					
2	215,482	8,173	164,050	323,853	117
3	144,077	5,092	104,390	211,527	112
5	196,160	6,755	141,204	284,284	363
6	47,142	1,726	35,720	68,059	188
7	6,069	362	6,311	9,196	12
10	25,254	11,007	24,126	36,489	128
2025 Southside Connector					
2	217,637	9,038	173,745	332,306	120
3	146,717	5,381	108,629	216,048	112
5	199,245	6,726	141,665	288,296	363
6	47,230	1,661	34,925	67,932	188
7	7,360	476	8,004	11,339	14
10	25,560	10,904	23,465	36,646	128
2025 3rd Barrel for General MacArthur Boulevard					
2	219,057	7,917	160,660	333,362	121
3	143,820	5,100	104,483	211,218	112
5	195,557	6,822	141,723	283,652	363
6	46,349	1,620	34,089	66,711	192
7	5,536	318	5,648	8,359	11
10	25,210	10,991	24,050	36,414	128

1.0 INTRODUCTION

In 1994, the Cape Cod Commission's regional travel demand forecasting model was developed in Tmodel-2 format. Based on guidance from the Massachusetts Highway Department (MassHighway), which was based on Air Quality Conformity Analysis needs, the Cape Cod Commission converted to the TRIPS software format. This TRIPS model was operational on the Cape in the summer of 1997. Advertised software upgrades never materialized, and in March of 1999, MassHighway issued new guidance to the regional planning agencies suggesting conversion to the TransCAD software.

To assist in the conversion, MassHighway retained a consultant to build new regional models in TransCAD format. MassHighway issued further guidance suggesting that all regional model networks be built from the state's road inventory system and that all traffic analysis zones in the regional model be based on Census Block Groups (or Block Group sub-divisions). The guidance further suggested use of cross-classification trip generation, use of a minimum of three trip purposes, and use of a gravity model for trip distribution.

In June/July 1999, regional models in TransCAD format were distributed to each region. These models were functional and contained needed data, but they were not calibrated. The base year for the new model is 1997.

From a trip generation perspective, the Cape Cod Commission is in a unique situation. Unlike other areas in Massachusetts, on Cape Cod the summer traffic volumes are approximately double winter counts. This increase is due to a large share of the housing stock, which consists of seasonal homes, and an increase in activity associated with many of the year-round homes. The Cape Cod Commission wished to retain consideration of the seasonal households for calculating summer travel and continues to use the original trip generation process. However, the Cape Cod Commission did convert to the MassHighway network built from the road inventory file system.

To expedite the model calibration and upgrading as necessary for use in Cape Cod transportation projects, the Cape Cod Commission retained a consultant. In general, the consultant's tasks were to:

- develop and calibrate winter and summer models with the summer model having the ability to consider seasonal households;
- employ the model in a Bourne Scenic Highway Study; and
- employ the model in a Canal Area Traffic Study.

The following discussion reviews the development of the model and the application of the model to the referenced studies.

2.0 THE ORIGINAL TRANSCAD MODEL

2.1 NETWORK DATA SOURCE

The original Cape Cod TransCAD model was developed in June/July 1999. The specific software target for the Cape Cod model, as defined by MassHighway, is TransCAD Version 3.5. MassHighway's Road Inventory GIS (RI-GIS) served as the basis for the network and network attributes. The coordinate system for the network is State Plane meters (NAD83). The RI-GIS files used to create the networks were the 1997 year-end data files.

The RI-GIS has precise intersection coordinates and an extensive set of line attribute data. The line work in the RI-GIS files do not show grade-separated roadways, rather grade-separations are shown as intersections with an intersecting node point. Roads closer than three meters together might appear as connected lines, and divided highways in the RI-GIS might appear as a single line. Highway ramps, such as those associated with Route 6, are coded in the RI-GIS as local roads. One-way designations are not associated with these ramps.

In travel demand forecasting models, grade separations must appear as unconnected (crossing) links, roads close together and inappropriately connected must be separated apart, and divided highways should be shown as one-way pairs. Some network editing had been completed by MassHighway's consultant prior to the distribution of the new models to the regional agencies. However, more extensive editing was required.

The attributes brought forward into the Cape Cod TransCAD model from the RI-GIS are shown in Table 1.

Table 1: TransCAD Network Line Attributes

TransCAD Variable Name	Description
ID	TransCAD requires that each line segment has a unique identification number. When the networks were built, network identifiers were established such that each region has a unique set of numbers. For the Cape Cod network the identifier sequence numbers begin at 2,000,000.
Length	The distance is calculated by TransCAD based on the coordinate system. The units are miles.
Dir	Direction. A value of 0 indicates two-way travel. A value of 1 indicates one-way. For one-way, the travel direction is indicated in the endpoint file as the A node-to-B node direction. The travel direction can also be seen by turning the arrows on in the map display.
Measured Distance	From the GIS system road inventory file. This is the fifth wheel measured distance in miles.
Street_Name	Street name as listed in GIS.

Route_Num	Primary and secondary route numbers as listed in the GIS.
Functional_ Class	These are based on data provided by the GIS system. The functional classification codes are as follow: **ROADS INSIDE THE REGION:** 0 = Local Road, not in model 1 = Interstate 2 = Rural Principal Arterial and Urban Extension 3 = Rural Minor Arterial and Principal Arterial Extension 4 = Other Urban Principal Arterials 5 = Urban Minor Arterial and Rural Major Collector 6 = Urban Collector and Rural Minor Collector 7 = Ramp - this category is not in the GIS and was manually coded during network editing 8 = undefined (reserved for future use) 9 = undefined (reserved for future use) 10 = Local Road included in model **ROADS OUTSIDE THE REGION:** 70 = Local Road not in model (outside of region) 71 = Interstate (outside of region) 72 = Rural Principal Arterial and Urban Extension 73 = Rural Minor Arterial and Principal Arterial Extension 74 = Other Urban Principal Arterials 75 = Urban Minor Arterial and Rural Major Collector 76 = Urban Collector and Rural Minor Collector 77 = Ramp - this category is not in the GIS and was manually coded during network editing 78 = undefined (reserved for future use) 79 = undefined (reserved for future use) 80 = Local Road included in model **ZONE CONNECTORS** 90 = External Zone Connector 99 = Internal Zone Connector
Town_Code	The town code integers are consistent with the GIS town code names.
Serial_Number	Used to uniquely identify each roadway segment as per this instance of the GIS database. The serial number is also used to cross-reference the road inventory database against other GIS databases.
Lanes	The number of lanes reflects the number of lanes per direction. This is different from the GIS number of lanes which reflects the cross-section number of lanes. A maximum of five lanes per direction is allowed in the database.
PostedSpeed	This field is based solely on the speed/capacity lookup table discussed in that section.
Fed_Area	This field represents the area type and this data comes from the GIS road inventory file. It has the following values: 0 = No Data 1 = Urban City 2 = Urban Town 3 = Rural Town
Acc_Con	This field represents the type of access control. Its source is the GIS and has the following values: 0 = No Access Control Data 1 = Full Access Control 2 = Partial Access Control 3 = No Access Control
Terrain	This field represents the terrain type and was taken from the road inventory part of the GIS. It has the following values: 0 = No Terrain Data Exists 1 = Level Terrain 2 = Rolling Terrain 3 = Mountainous Terrain
Divided	This field identifies whether the roadway is divided or not. These data were taken from the inventory part of the GIS. This data field is only useful when a divided roadway is represented by a single line in the GIS. Most divided roads are shown as one-way pairs. This data field has the following values: 0 = No divided data exists 1 = Roadway is Divided 2 = Roadway is not divided
Travel_Width	This field is from the road inventory part of the GIS. The units are in feet and this defines the total pavement width (shoulder to shoulder)
Road_Number	This is the road inventory number used in the GIS. When combined with the town ID code, it uniquely defines each roadway in the state.
Time	The TransCAD model requires a travel time. This data field is calculated by the user. The calculation is to divide the Length by the speed and then multiply the product by 60 to convert the units to minutes.

Hourly_Cap_ LOSE	Hourly Capacity for Level of Service E from speed/capacity lookup table.
Daily_Cap_ LOSE	This field is filled out by multiplying the Hourly_Capacity by a conversion factor. This multiplication is handled by the speed/capacity lookup table. The multipliers to convert hourly capacity to daily capacity follow: Class 1 Multiplier = 13 Class 2 Multiplier = 10 Class 3 Multiplier = 10 Class 4 Multiplier = 10 Class 5 Multiplier = 9 Class 6 Multiplier = 9 Class 7 Multiplier = 13 Class 8, unused Class 9, unused Class 10 Multiplier = 8
Hourly_Cap_ LOSC	Hourly capacity for Level of Service C as calculated based on Level of Service E capacity, that is, LOSE capacity X 0.75
Daily_Cap_LOSC	This field is filled out by multiplying the Hourly_Capacity by a conversion factor as shown above.

A speed/capacity lookup table was used to assign free flow speed and capacity attributes to the network. Use of a lookup table greatly expedited the development of the network. The speed/capacity table is based on the Highway Capacity Manual. The lookup table is sensitive to functional classification, number of travel lanes, area type, and topography. Model users can over-ride the speed/capacity and manually code values for links.

The TransCAD networks have been tested by MassHighway's consultant by building paths and by checking an initial assignment. One-way roads in these files reflect information coded in the RI-GIS. Placement of interchanges and ramp directions were coded by an automated process and thus require checking.

The recommended practice for use of the RI-GIS networks is that all roads functionally classified as collectors or higher should be included in the regional models. Local roads, as needed for network continuity, should also be added to the network by the regional planning agencies.

2.2 Zone Data Sources

MassHighway established that internal traffic analysis zones should be based on Census Block Groups and that external traffic zones should be placed where collector or higher functionally classified roads cross regional boundaries.

The zone boundaries and data were provided to the regions by MassHighway as part of the initial model structure. The two principal elements of the internal zone data files are the zone boundary polygons and the population/employment attributes. The zone boundary polygons come from the

1995 Census TIGER File CD. These boundary files were read from the TIGER CD directly by TransCAD. A unique ID was assigned to each zone. A code consisting of state, county, tract, and Block Group numbers uniquely identifies each zone.

The population statistics used in the model are household cross-classification matrices based on household size and auto availability. The Block Group cross-classification matrix columns are labeled as zero auto households, 1 auto households, 2 auto households, 3 auto households, and 4 or more auto households. The rows of the matrix are labeled as 1 person households, 2 person households, 3 person households, and 4 or more person households. The matrix has 20 cells. For each internal zone, each matrix cell must have a value equal to or greater than zero. For each zone, the number of households within each category must be determined.

The household data in the model for 1997 are from the Caliper Data CD U.S. Block Groups Version 2 which was developed from the U.S. Census Block Group data summaries. For each Block Group, the Caliper CD identifies the total population, the total number of households, the average household size, and the average autos available. The Caliper Data CD does not contain a cross-classification matrix as required by the trip generation process. The U.S. Census also does not identify such a matrix at the Block Group level. Such detail in the Census would compromise personal privacy. However, this cross classification data matrix does exist in the Census at the County level.

A TransCAD macro was prepared by MassHighway's consultant which would generate the needed cross-classification data at the Block Group level zone system.

Generating a detailed household cross-classification matrix at the Block Group level is a common challenge for urban model development. The most widely applied strategy for developing this matrix is to estimate it based on published Block Group statistics. The published Block Group statistics used to estimate the matrix are total households, average household size, and average auto availability. A county seed auto availability and average household size cross-classification matrix were also required. These variables served as the basis for computing the needed Block Group cross-classification matrix for regional models.

The format of the completed zonal data file for each region is labeled tazhhne1.dbf and is shown in Table 2.

Table 2: Internal Zone Data File Fields	
ID	M2PER1AU
F97_POP	M2PER2AU
F97_HOUS	M2PER3AU
F97_TOT_AO	M2PER4AU
F97_POPHH	M3PER0AU
F97_AOHH	M3PER1AU
F97_1PER	M3PER2AU
F97_2PER	M3PER3AU
F97_3PER	M3PER4AU
F97_4PER	M4PER0AU
M1PER0AU	M4PER1AU
M1PER1AU	M4PER2AU
M1PER2AU	M4PER3AU
M1PER3AU	M4PER4AU
M1PER4AU	
M2PER0AU	

In addition to population, household, and auto availability data, zonal employment data are also needed. The employment data selected for use by MassHighway are as follows:

1. Retail
2. Service
3. Education
4. Health
5. Entertainment
6. Manufacturing
7. Other

The employment data were obtained from the Caliper CD previously referenced and from the CTPP statewide and urban element files. The seven categories of employment data were developed by consolidating the 18 employment categories in the CTPP Part B data. The 18 categories and the resulting consolidations are:

1. Agriculture, forestry, and fisheries
2. Mining
3. Construction
4. Manufacturing, nondurable goods
5. Manufacturing, durable goods
6. Transportation
7. Communications and other public utilities
8. Wholesale trade
9. Retail trade
10. Finance, insurance, and real estate
11. Business and repair services
12. Personal services
13. Entertainment and recreation services
14. Health services
15. Educational services
16. Other professional and related services
17. Public administration
18. Armed Forces

1. Retail = Category 9
2. Service = Categories 7,10,12,16, and 17
3. Education = Category 15
4. Health = Category 14
5. Entertainment = Category 13
6. Manufacturing = Categories 4,5,8, and 11
7. Other = Categories 1,2,3,6 and 18

The 1990 zonal employment data were expanded to 1997 based on the estimated employment on the Caliper CD. The Caliper CD provides both 1990 and 1997 employment by the county place of residence. A county growth factor from 1990 to 1997 was calculated and used to expand 1990 zonal employment data, by place of work, to 1997.

In addition to population and employment data, an area type for each zone was needed. These area types are consistent with the RI-GIS. Consequently the zone area type was tagged from the highway link layer.

Land use data obtained from an older Cape Cod Commission TRIPS model were coded on the TAZ layer. Based on the Regional trip generation formula, the other data fields on the TAZ layer include productions and attractions for three trip purposes.

The final column labels in the 1997 TAZ database are presented in Table 3.

Table 3: 1997 TAZ Database	
ID	
Area	
Code	
AREATYPE	(1=urban city, 2=urban town,3=rural)
F97_HOUS	(1997 total household)
F1PER0AU	(1 Person HHs and 0 Autos)
F1PER1AU	
F1PER2AU	
F1PER3AU	
F1PER4AU	
F2PER0AU	(2 Person HHs and 0 Autos)
F2PER1AU	
F2PER2AU	
F2PER3AU	
F2PER4AU	
F3PER0AU	(3 Person HHs and 0 Autos)
F3PER1AU	
F3PER2AU	
F3PER3AU	
F3PER4AU	

F4PER0AU	(4 Person HHs and 0 Autos)
F4PER1AU	
F4PER2AU	
F4PER3AU	
F4PER4AU	
F97RETAIL	
F97SERVICE	
F97EDUCATI	
F97HEALTH	
F97ENTERTA	
F97MANUF	
F97OTHER	

In TransCAD, the network and zones are stored as different data layers. The network is stored in the link layer and the nodes are stored in the endpoints layer. These two layers are brought together with zone connectors. TransCAD has a built-in macro, which connects zones to a network by generating centroids on the endpoints layer and connectors on the link layer. Conditions for these connections can be user-defined. For the zone connectors in the regional models, the conditions step precluded zone connectors to local roads or limited access roads. One zone connector was added per zone. When the zone connectors were established, a travel time of 3 minutes and 10 minutes was assumed for internal and external zone connectors, respectively. At each point where a road that is functionally classified as collector or higher crosses the region's boundary, an external boundary zone is created. These boundary points generate productions and attractions and serve as origins or destinations for external-external trips. The productions and attractions for each external boundary zone are calculated based on observed average daily traffic (ADT). External-external trips are also a function of ADT. To prepare data for these external zones, the data collected during the 1997 field reviews was examined. These data provided external-external trips for most of the major movements through the region. Some of the data files also had 1997 count data. The state's annual count program was also examined for data. The external-external trip table was updated from the older Cape Cod Commission regional model.

3.0 THE CALIBRATED BASE MODEL

The Cape Cod region is unique. Summer daily vehicle miles of travel (VMT) is nearly double the winter VMT. Both population and employment increase significantly during the summer. The housing stock consists of year-round homes, which are occupied year round, and homes which are occupied only during the summer, late spring, and early fall. There are also seasonal homes which lack insulation and heating for other than summer use.

There are issues regarding household occupancy levels. Homes that are occupied year round have more residents in summer months than winter.

On the employment side, there is permanent employment where jobs exist year round, and there are seasonal jobs and seasonal employers.

Cape Cod experiences the greatest presence of CO and NoX during the summer. The model should be used to estimate traffic during the summer to assure accurte emissions estimates. The staff at the Cape Cod Commission has considered seasonal housing and employment and prepared a summer PM peak period model for the regional air quality analysis. Given the unique characteristics on the Cape, this appears to be the best strategy for the foreseeable future.

In contrast, the regional model supplied by MassHighway has been designed to predict 24-hour volumes using year round housing and employment.

In addition to the model calibration and validation issues faced by regional planning agencies in Massachusetts, the Cape was also faced with the need to re-code zonal demographics and employment and to completely revise the trip generation process supplied by MassHighway to consider summer conditions.

3.1 HIGHWAY NETWORK EDITING

The first step in the network editing process was to review the zone connectors which had been established using the TransCAD automated process. These zone connectors were drawn to the closest road having a functional classification of collector or higher. This meant that many connectors were attached directly to Route 6. These connections were all relocated.

Following corrections to the obvious zone connector problems, other zone connector issues were examined. The basic problem is that the automated zone placement process doesn't place the connector in the best location from a traffic loading point perspective. Also, the use of a single loading point per zone is usually not good practice. It is desirable in most cases to have 2-3 zone connectors per zone.

Following the zone connector corrections, the next focus area was Route 6. Many of the interchanges were not properly coded. Ramps were missing and the direction of travel on many ramps was incorrect.

There were many cross-roads associated with Route 6 that should have been grade-separated but were shown as at-grade intersections. These were corrected.

In addition, a new functional class = 17 was assigned to ramps at the interchange of Route 25/North Bourne Rotary and at the interchange of Route 6/Sagamore Rotary Bridge. These ramps were considered different from other diamond interchange ramps because they don't have stop/yield sign control. The new functional class ramps have higher capacity than the general ramps with functional class = 7. The speed/capacity lookup table and the macro were modified to incorporate the change.

Following these initial changes, the model was tested by building paths. The paths selected by the model were manually checked. Through this process, there were many gaps in the network which were found and corrected. These gaps occur when two nodes in the RI-GIS are close together but not connected. They usually are the result of omissions in the GIS editing operation. When the networks were originally built from the RI-GIS, a snap distance of three meters was used. If two nodes are separated by a distance of three meters or less they are combined into a single node. There were many nodes along roadway mainlines which were greater than three meters in separation, yet less the 10 meters. These are difficult to visually detect within the GIS system, and can only be found during an assignment.

The network attributes in the RI-GIS were checked for consistency. The checking was performed by color coding link attributes, using TransCAD, and checking for inconsistencies. There were many gaps in the attributes where a line existed to represent the road, yet the line attributes were not consistent with roads connected at either end.

The last network characteristic that received specific attention were one-way roads. Particularly in Hyannis, there were many roads shown as one-way with an incorrect travel direction.

3.2 Zone Structure Refinement

The original traffic analysis zones (TAZ) were based on census Block Groups. In the original model, Bournedale DCPC District contained two TAZs. At the request of the Cape Cod Commission, two TAZs were split into four. TransCAD map editing procedures were used to perform the zone splitting. In addition, a TAZ that existed on both sides of canal was split into two zones. The demographic data for the split zones in the 1997 model were allocated based on zonal area.

In the original model, external zone numbers follow the last internal zone. To provide a flexibility to add more internal zones, the external zones were re-numbered starting from 1000.

Three external zones, which were not included in the old model but which have a functional class of collector, were added to the model.

Since the centroid ID has to exactly match the zone ID, a TransCAD macro was created to change the centroid ID on the endpoints layer for the modified TAZs.

3.3 Trip Generation

Following the completion of the network adjustments, attention focused on the trip generation process. The MassHighway trip generation process was enhanced with the Cape Cod Commission trip generation.

The land use data, such as year-round households and seasonal households, were obtained from the older Cape Cod Commission TRIPS model and coded into the TAZ database layer. Trip

generation equations from the Cape Cod Commission's earlier model were examined. The equations are:

HBWP = 0.05V3 + 0.03V4 + 0.18V5 + 0.24V6 + 0.05V8

HBWA = 0.20V3 + 0.10V4 + 0.06V5 + 0.04V6 + 0.02V8

HBNWP = 0.10V3 + 0.17V4 + 0.25V5 + 0.05V6 + 0.35V7 + 0.08V8

HBNWA = 0.12V3 + 0.18V4 + 0.17V5 + 0.04V6 + 0.10V7 + 0.08V8

NHBP = 0.03V3 + 0.03V4 + 0.17V5 + 0.04V6 + 0.2V7 + 0.28V8

NHBA = 0.03V3 + 0.03V4 + 0.14V5 + 0.03V6 + 0.05V7 + 0.28V8

In the preceding equations:

V3 = Year Round Household (datafield: SumYRRNDHU)

V4 = Seasonal Household (datafield: SumSEASONAL)

V5 = Retail Employment (datafield: SumRETAIL)

V6 = Non-Retail Employment (datafield: Sum[NONRET'L])

V7 = Beach Parking (datafield: SumBEACHPKG)

V8 = Hotel (datafield: SumHOTEL)

The productions and attractions generated by the above equations are on the TAZ layer and named as **HBWP_CAPE COD COMMISSION, HBWA_CAPE COD COMMISSION, HBNWP_CAPE COD COMMISSION, HBNWA_CAPE COD COMMISSION, NHBP_CAPE COD COMMISSION, and NHBA_CAPE COD COMMISSION**. Rather than using these equations directly, the new Cape Cod Commission trip generation process was updated.

In the new model, summer productions and attractions for Cape Cod Commission were assembled from two parts. The first part is generated by year-round household and employment data as used in the general MassHighway regional planning models. In the TAZ layer, these data fields are named as **HBWP, HBWA, HBNWP, HBNWA, NHBP,** and **NHBA**. These are average year-round productions and attractions. The second part of the trip generation process uses seasonal household and seasonal employment and is called seasonal productions and attractions. Seasonal data were obtained from the old Cape Cod Commission TRIPS model. By examining and comparing these data with other data sources, it was found that the seasonal

employment data was not valid for use. Therefore, a regression model with only seasonal households for productions was used. The seasonal attractions were balanced based on productions. Moreover, because the seasonal households rarely generate home based work trips, the regression models were developed for HBNW and NHB only with a total of 5.25 trips generated per seasonal household. The equations used are:

HBNW seasonal production = 3.83 x Seasonal Household
NHB seasonal production = 1.42 x Seasonal Household

Seasonal productions and attractions on the TAZ layer are named as **HBWP_SEASON, HBWA_SEASON, HBNWP_SEASON, HBNWA_SEASON, NHBP_SEASON,** and **NHBA_SEASON.** By adding the year-round and seasonal Ps and As, the summer total Ps and As can be calculated. These totals are in datafields **HBWP_TOT, HBWA_TOT, HBNWP_TOT, HBNWA_TOT, NHBP_TOT,** and **NHBA_TOT.**

The above productions and attractions are for summer weekday daily trips. To convert the daily model into a summer weekday PM peak hour model, the hourly factors in Table 4 were applied. The lookup table was developed based on NCHRP Report #180. Because the model represents the PM peak hour, the factors for hour 16 to hour 17 were used.

Table 4: Hourly Factor Lookup Table

HR	FL_ALL	FL_HBW	FL_HBN	FL_HBO	FL_NHB	DEP_ALL	RET_ALL	DEP_HBW	RET_HBW	DEP_HBNW	RET_HBNW	DEP_HBO	RET_HBO	DEP_NHB	RET_NHB
0	0.70	0.40	0.70	0.70	0.60	0.35	0.35	0.40	0.00	0.35	0.35	0.35	0.35	0.30	0.30
1	0.20	0.20	0.30	0.30	0.20	0.10	0.10	0.20	0.00	0.15	0.15	0.15	0.15	0.10	0.10
2	0.80	0.00	0.00	0.00	0.00	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.10	0.20	0.10	0.10	0.00	0.05	0.05	0.20	0.00	0.05	0.05	0.05	0.05	0.00	0.00
4	0.10	0.40	0.00	0.00	0.10	0.05	0.05	0.40	0.00	0.00	0.00	0.00	0.00	0.05	0.05
5	1.00	2.70	0.50	0.50	0.40	0.50	0.50	2.70	0.00	0.25	0.25	0.25	0.25	0.20	0.20
6	3.20	7.90	2.00	2.00	1.50	1.60	1.60	7.90	0.00	1.00	1.00	1.00	1.00	0.75	0.75
7	8.90	19.20	5.80	5.80	6.60	4.45	4.45	19.20	0.00	2.90	2.90	2.90	2.90	3.30	3.30
8	4.10	9.20	3.40	3.40	4.00	2.05	2.05	9.20	0.00	1.70	1.70	1.70	1.70	2.00	2.00
9	3.20	3.00	3.00	3.00	3.60	1.60	1.60	3.00	0.00	1.50	1.50	1.50	1.50	1.80	1.80
10	3.90	0.70	4.40	4.40	5.60	1.95	1.95	0.70	0.00	2.20	2.20	2.20	2.20	2.80	2.80
11	4.10	0.60	4.40	4.40	6.30	2.05	2.05	0.60	0.00	2.20	2.20	2.20	2.20	3.15	3.15
12	5.20	2.10	4.00	4.00	10.20	2.60	2.60	0.70	1.40	2.00	2.00	2.00	2.00	5.10	5.10
13	4.80	2.00	4.80	4.80	7.20	2.40	2.40	0.60	1.40	2.40	2.40	2.40	2.40	3.60	3.60
14	4.90	3.80	4.20	4.20	6.90	2.45	2.45	0.60	3.20	2.10	2.10	2.10	2.10	3.45	3.45
15	6.70	6.30	6.20	6.20	8.00	3.35	3.35	0.60	5.70	3.10	3.10	3.10	3.10	4.00	4.00
16	**9.30**	**13.70**	**8.10**	**8.10**	**8.00**	**4.65**	**4.65**	**0.60**	**13.10**	**4.05**	**4.05**	**4.25**	**4.25**	**4.00**	**4.00**
17	8.50	12.40	8.00	8.00	6.20	4.25	4.25	0.60	11.80	4.00	4.00	4.00	4.00	3.10	3.10
18	6.40	3.70	8.50	8.50	4.70	3.20	3.20	0.60	3.10	4.25	4.25	4.25	4.25	2.35	2.35
19	7.90	2.30	11.20	11.20	6.30	3.95	3.95	0.60	1.70	5.60	5.60	5.60	5.60	3.15	3.15
20	5.90	1.60	7.90	7.90	5.80	2.95	2.95	0.60	1.00	3.95	3.95	3.95	3.95	2.90	2.90
21	4.80	2.90	6.00	6.00	3.90	2.40	2.40	0.00	2.90	3.00	3.00	3.00	3.00	1.95	1.95
22	3.20	2.80	3.90	3.90	2.40	1.60	1.60	0.00	2.80	1.95	1.95	1.95	1.95	1.20	1.20
23	2.10	1.90	2.60	2.60	1.50	1.05	1.05	0.00	1.90	1.30	1.30	1.30	1.30	0.75	0.75

In addition to summer conditions, it was the desire of the Cape Cod Commission staff to have the capability to also develop winter PM peak hour volumes. It was assumed that seasonal households do not produce winter trips. Average year-round trips are reduced by a certain percentage due to lower occupancy rates. Eighty percent of year-round productions and attractions were used as winter productions and attractions. For external stations, because it is known from traffic counts that the winter traffic volume is 54 percent of the summer volume, external Ps and As were factored to 54 percent of the summer Ps and As. The winter Ps and As are named as **HBWP_WINTER, HBWA_WINTER, HBNWP_WINTER, HBNWA_WINTER, NHBP_WINTER,** and **NHBA_WINTER** on the TAZ layer.

3.4 Trip Distribution

A gravity model was used as the basis for the trip distribution process. TAZs are categorized into three area types: urban city, urban town, and rural town. Each area type has different land use density and a different intrazonal travel time. During model calibration, the intrazonal travel times were determined to be 6, 5.5, and 4 minutes for the three area types.

Table 5 lists the friction factors developed and calibrated for the distribution.

The gravity model calibration was performed based on the trip length travel time frequency distributions. The 1990 Census Transportation Planning Package (CTPP) was used to determine the mean trip length for the work trip. Other trip purposes were adjusted according to differences in trip length and trip purpose as reported by the Transportation Research Board Report No. 365.

3.5 Traffic Assignment

Vehicle occupancy rates used to factor the person trip table to vehicle trips were taken from Transportation Research Board Report No. 365 (for HBW, the rate equals 1.12 persons per vehicle, for HBNW and NHB, the rate is 1.56 persons per vehicle). An equilibrium traffic assignment process was used. The speed/delay function used in the assignment process was the Bureau of Public Roads (BPR) delay curve. The Alpha and Beta parameters were set universally for all links as Alph=4 and Beta=1.5.

Table 5: Friction Factor Lookup Table

TIME	HBW	HBNW	NHB
1	10000	20000	7000
2	9000	18200	6500
3	8800	16965	6000
4	7500	15480	5000
5	6600	14000	4000
6	2300	3300	1400
7	2300	3300	1400
8	2300	3300	1400
9	2300	3300	1400
10	2300	3300	1400
11	1900	2400	900
12	1500	1650	700
13	1300	1150	520
14	1100	910	400
15	800	800	320
16	700	500	250
17	600	400	200
18	460	300	175
19	420	250	150
20	380	200	130
21	325	180	100
22	280	130	80
23	250	110	70
24	230	100	60
25	210	75	50
26	180	65	45
27	165	55	40
28	140	45	35
29	130	40	30
30	116	35	26
31	100	30	23
32	85	25	21
33	80	23	18
34	75	19	17
35	70	17	15
36	65	17	13
37	60	15	12
38	57	13	10
39	51	12	10
40	45	10	9
41	43	8	9
42	35	7	8
43	33	7	8
44	27	6	7
45	25	5	7
46	22	5	7
47	20	4	6
48	18	4	6
49	17	4	5
50	16	4	5
51	15	4	5
52	13	3	5
53	11	3	4
54	10	3	4
55	10	3	3
56	9	3	3
57	9	3	3
58	9	2	3
59	8	2	3
60	7	2	3
61	5	2	3
62	5	2	2
63	5	2	2
64	5	2	2
65	5	2	2
66	4	2	2
67	4	2	2
68	4	2	2
69	3	1	2

3.6 MODEL CALIBRATION

The model calibration process requires traffic counts as the basis for comparison. The Cape Cod Commission has a traffic count database of approximately 600 locations. This database is a point file of locations, and a table of current and historical traffic count data.

Because the TransCAD traffic assignment volumes are associated with the link layer, the traffic count data were imported into TransCAD and overlaid to the link layer. Having the Cape Cod Commission count program volumes in TransCAD is a tremendous benefit to the calibration process. However, it was difficult and time consuming associating a point data file with links. After overlaying, there was still extensive manual editing.

The greatest effort associated with the manual cleanup was relating the directional link flows to the proper travel direction in the TransCAD link layer file. This problem was principally associated with the RI-GIS base file, more so than the Cape Cod Commission traffic count database. The Cape Cod Commission data file maintained a consistent storage format in terms of showing eastbound then westbound, and northbound and then southbound flow. However, in the RI-GIS file, the primary and reverse direction of travel on two-way links was determined based on how the line was originally created basically user preference. Consequently, there was a considerable amount of manual labor associated with relating the traffic count direction to the link direction. A flag data field called D_AB was created. If the D1 and D2 directions are consistent with AB and BA flow, there is no value in the D_AB data field. Otherwise, a value of 1 was recorded in the data field so the count direction could be transposed.

The assignment was calibrated based on screen line traffic flows and an overall comparison of the assignment and observed travel. Three screenlines were identified on Outer Cape, Mid Cape, and Upper Cape areas. The results of the screen line calibration are presented in Table 6.

During the model calibration process there was some difficulty with Route 28. In some areas, the model was over assigning. In other areas, the assignment was close to observed counts. Further investigation concluded that there are local roads used to circumvent Route 28. When the local roads were added into the network, the traffic volumes began to compare favorably with the observed counts.

Table 6: Screenline Calibration Results

	Location	Total Model Assignment	Total Traffic Counts	Total Ratio
ScreenLine 1	Rt28, North of Rt151 & Rt28 Interchange	1669	1419	1.18
ScreenLine 2	East of Yarmouth, along Bass River	1848	1893	0.98
ScreenLine 3	Rt6, South of Rt6& Rt28 Rotary	2853	2582	1.1

The percent error for different functional classifications of the assignment calibration are shown in Table 7. All of the numbers are under the threshold defined in the guideline published by The Federal Highway Administration entitled Calibration and Adjustment of System Planning Models.

Table 7: Percent Error by Functional Classification

Fucntional_Class	Definition	Percent Error
Functional_Class 2	Rural Principal arterial and Urban Extension	5 Percent
Functional_Class 3	Rural Minor Aterials and Principal Arterial Extension	8 Percent
Functional_Class 5	Unban Minor Arterials and Rural Major Collector	6 Percent
Functional_Class 6 & 7	Urban and Rural Collector and Ramps	20 Percent

*Note: Percent Error = (Assignment - Counts) / Counts

Because the two transportation studies for which the TransCAD model is used are focused on the Canal area more effort was put into into calibrating the Cape Cod Canal area. The calibration results are shown in Table 8.

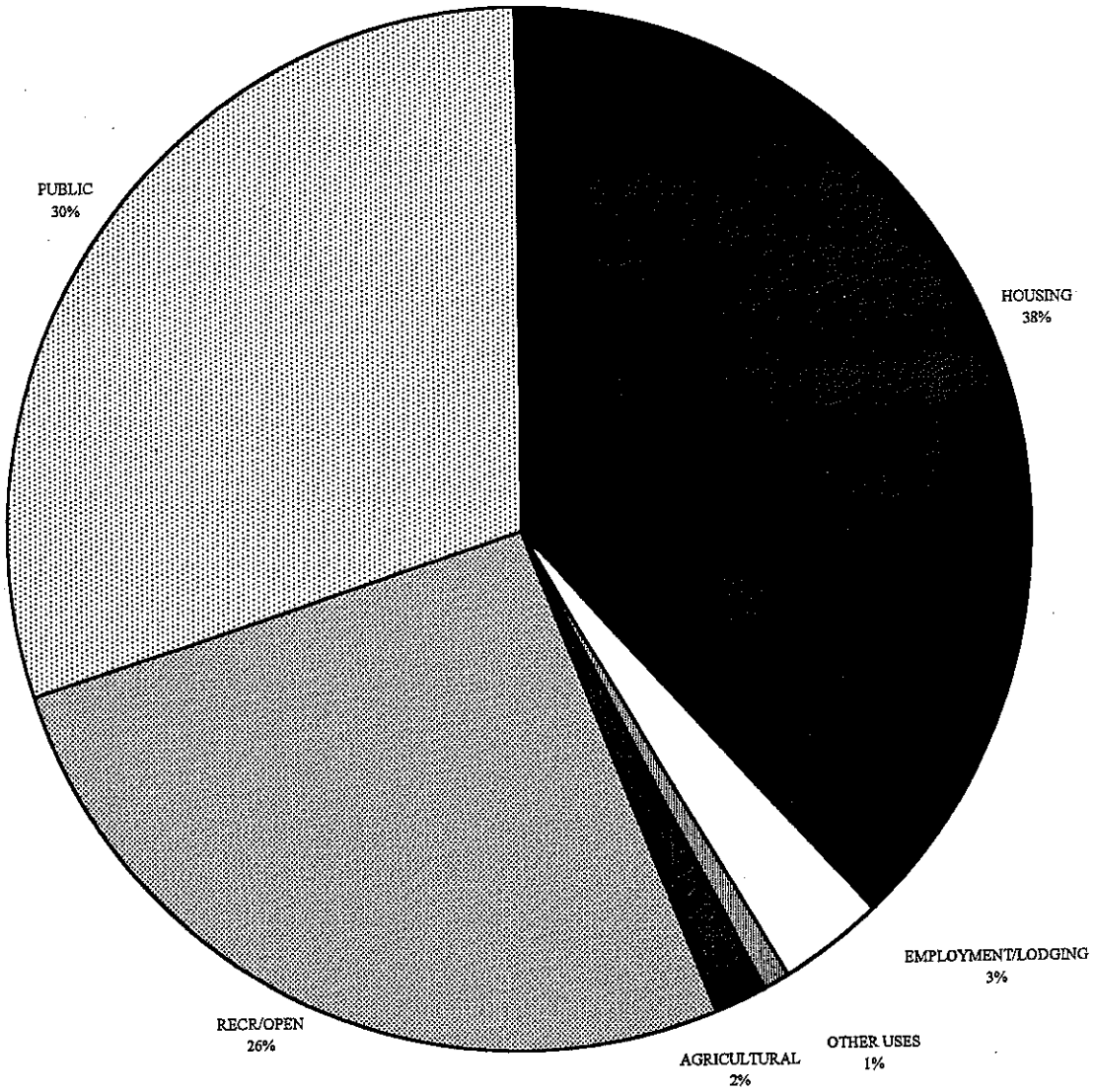
Table 8: Canal Area Calibration Results

Street Name	Actual Traffic Counts		Model Assignment	
	EB & NB	WB & SB	EB & NB	WB & SB
MEETING HOUSE LANE	639	540	683	558
MEETING HOUSE LANE	319	321	284	404
OLD PLYMOUTH ROAD	112	153	8	11
OLD ROUTE 3A	254	207	279	274
HERRING POND ROAD	126	88	80	76
HEAD OF THE BAY	185	246	351	336
CRANBERRY HIGHWAY	954	1448	752	1021
CRANBERRY HIGHWAY	880	1262	906	1194
SAINT MARGARETS	146	83	121	113
BUZZARDS BAY BYPASS	146	83	373	659
BUZZARDS BAY BYPASS	649	640	489	768
BUZZARDS BAY BYPASS	704	466	659	373
ROUTE 25	1680		1573	

Overall Percent Error= 0.1%

Land Use

Figure 1:Land Use on Cape Cod (except military complex)

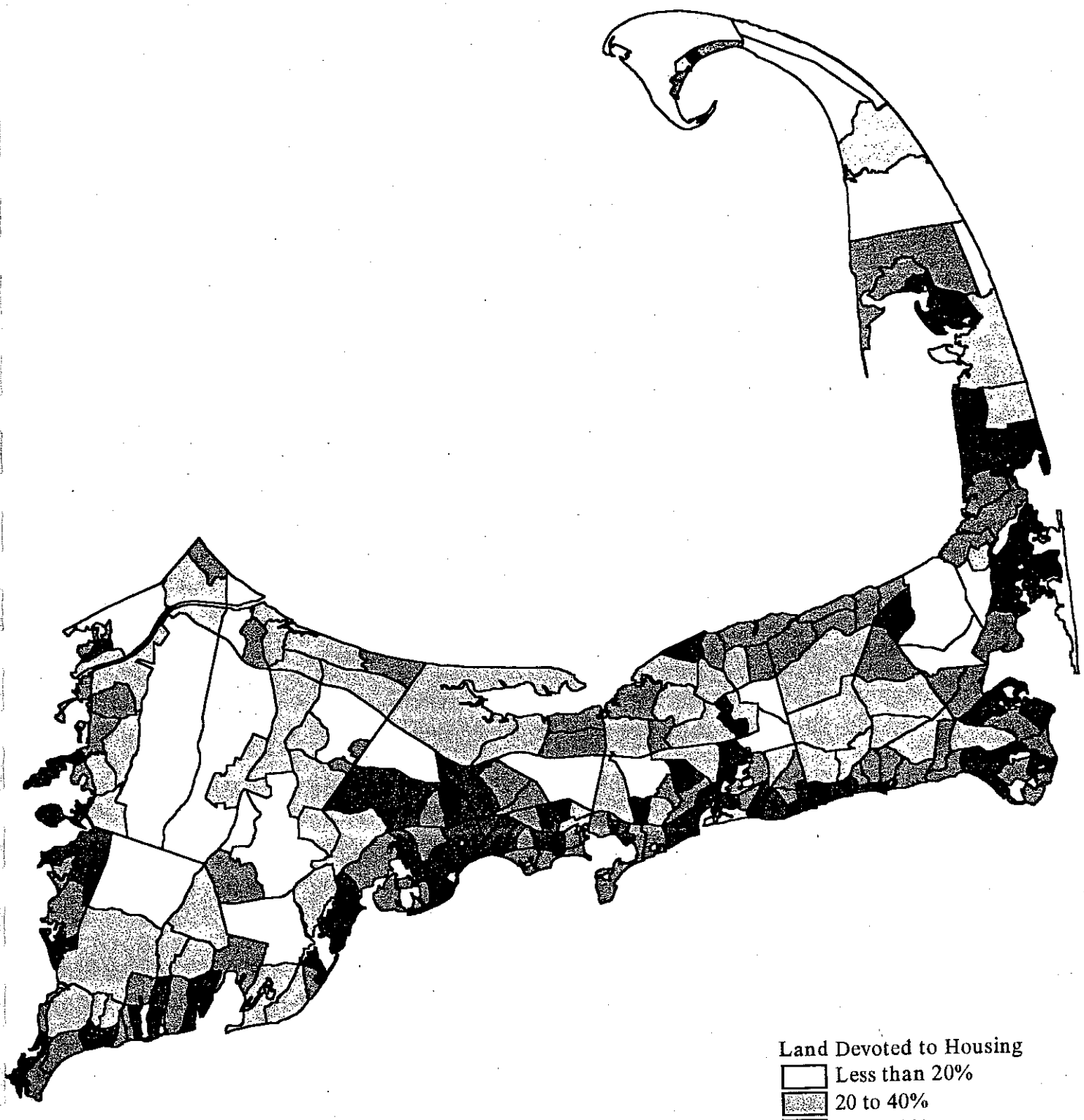


Source: Tax Assessors' data from Cape towns, 1988-1996

12

Land Uses on Cape Cod (1990): Housing

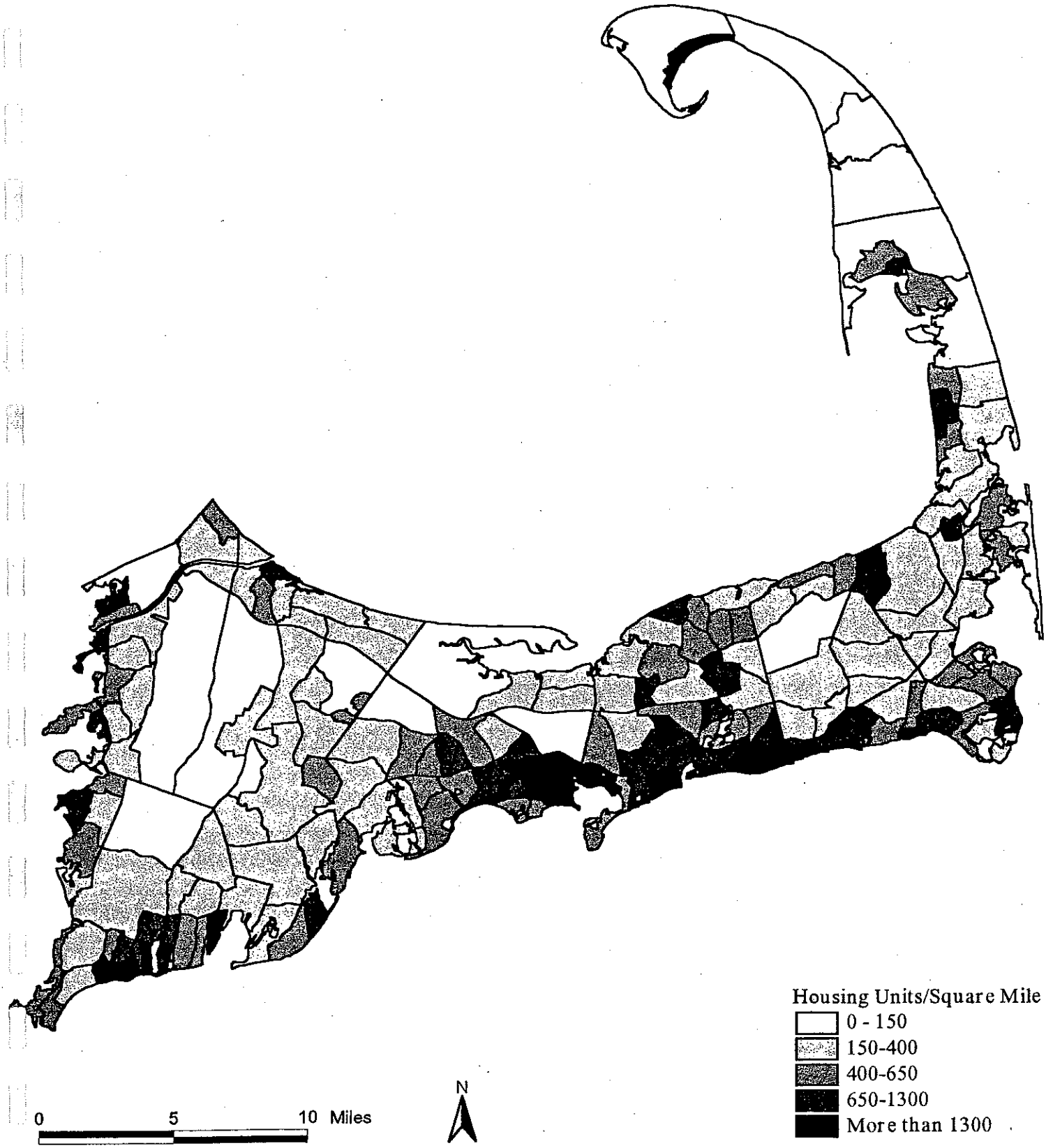
Cape Cod Commission
Regional Transportation Model



13

Land Uses on Cape Cod (1990): Housing Units/Square Mile

Cape Cod Commission
Regional Transportation Model



14

Land Uses on Cape Cod (1990): Average Housing Lot Size

Cape Cod Commission
Regional Transportation Model

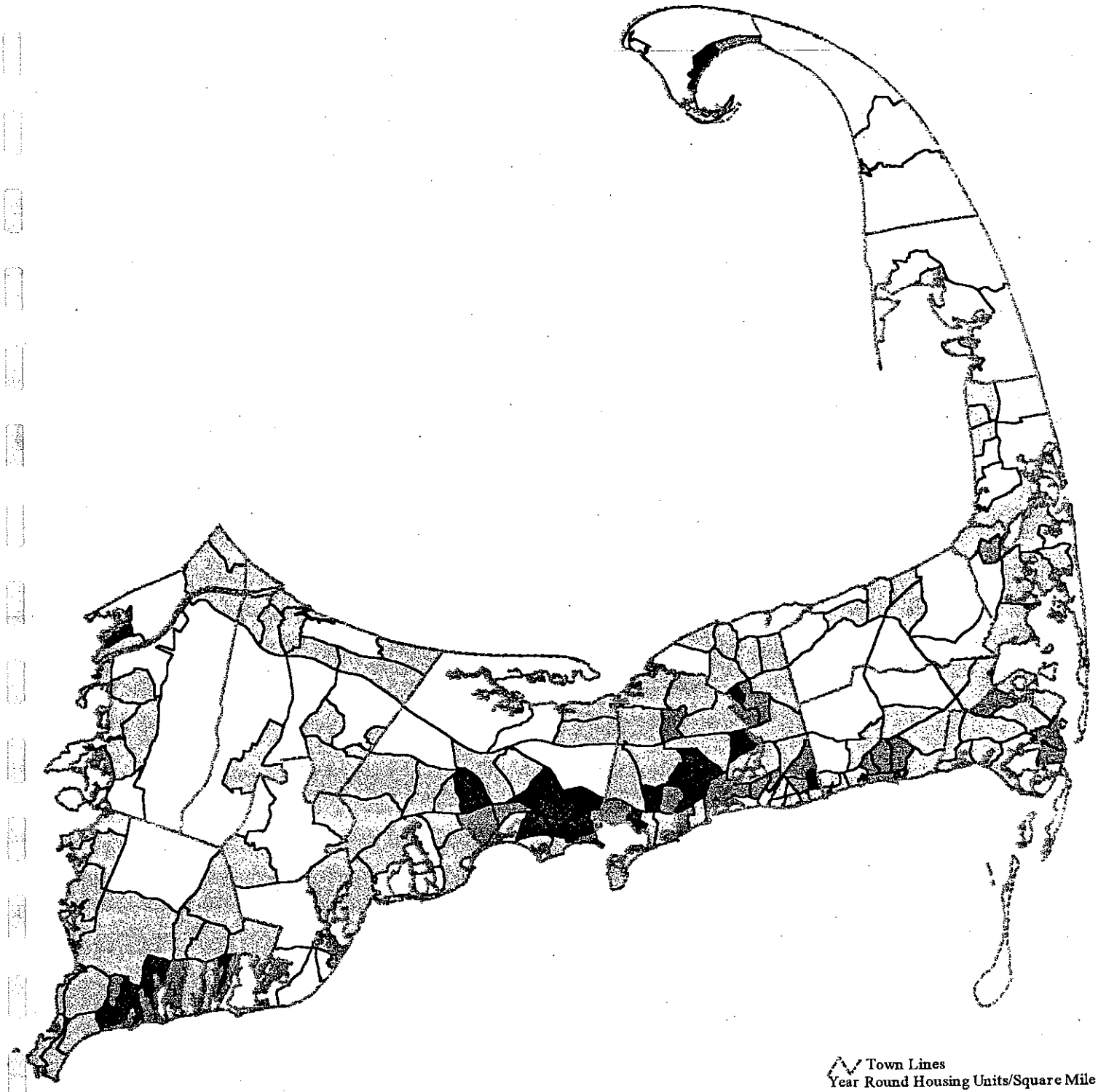
15

Land Uses on Cape Cod (1990): Multifamily Housing

Cape Cod Commission
Regional Transportation Model

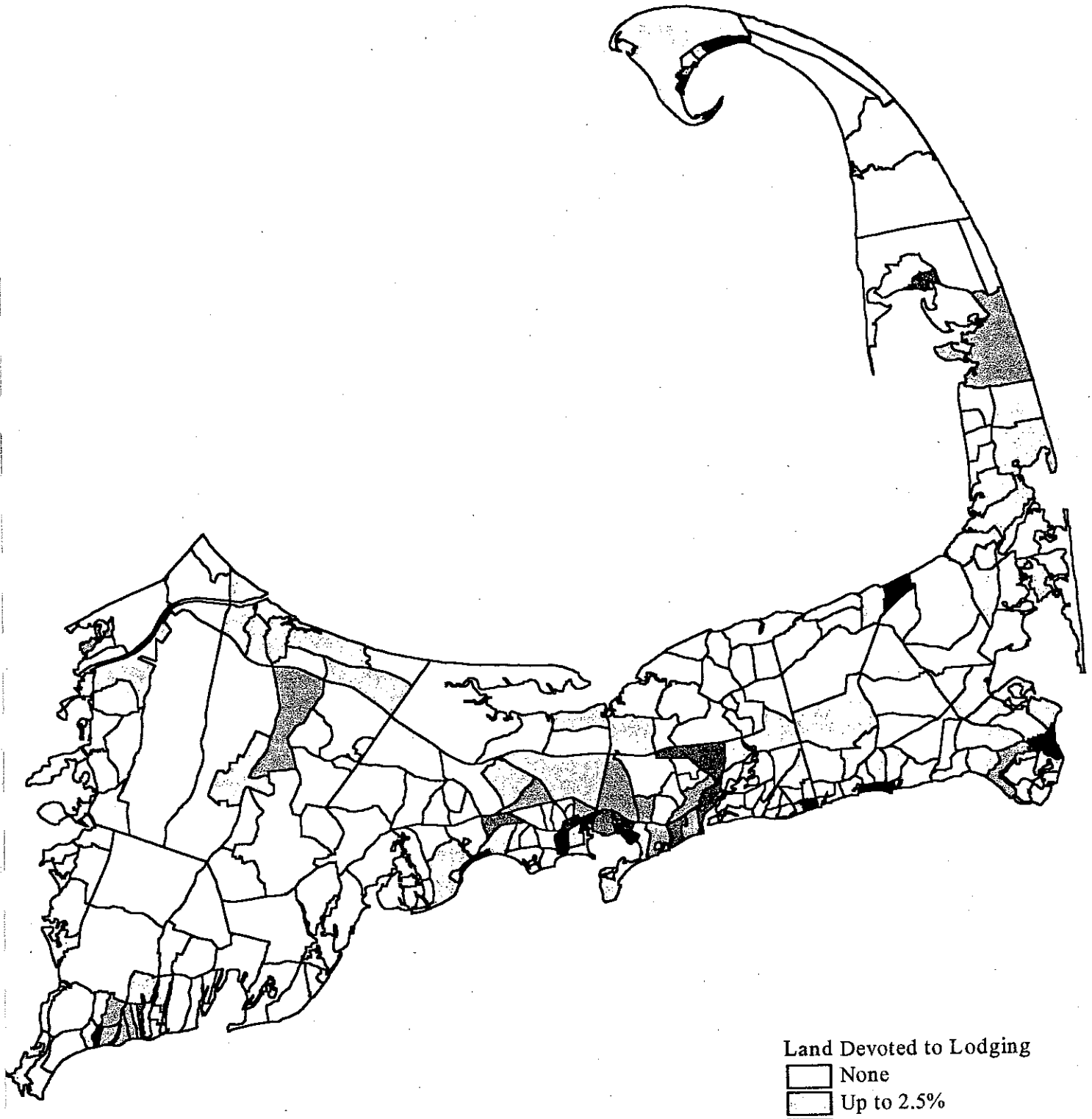
Land Uses on Cape Cod (1990): Year Round Housing Units/Square Mile

Cape Cod Commission
Regional Transportation Model



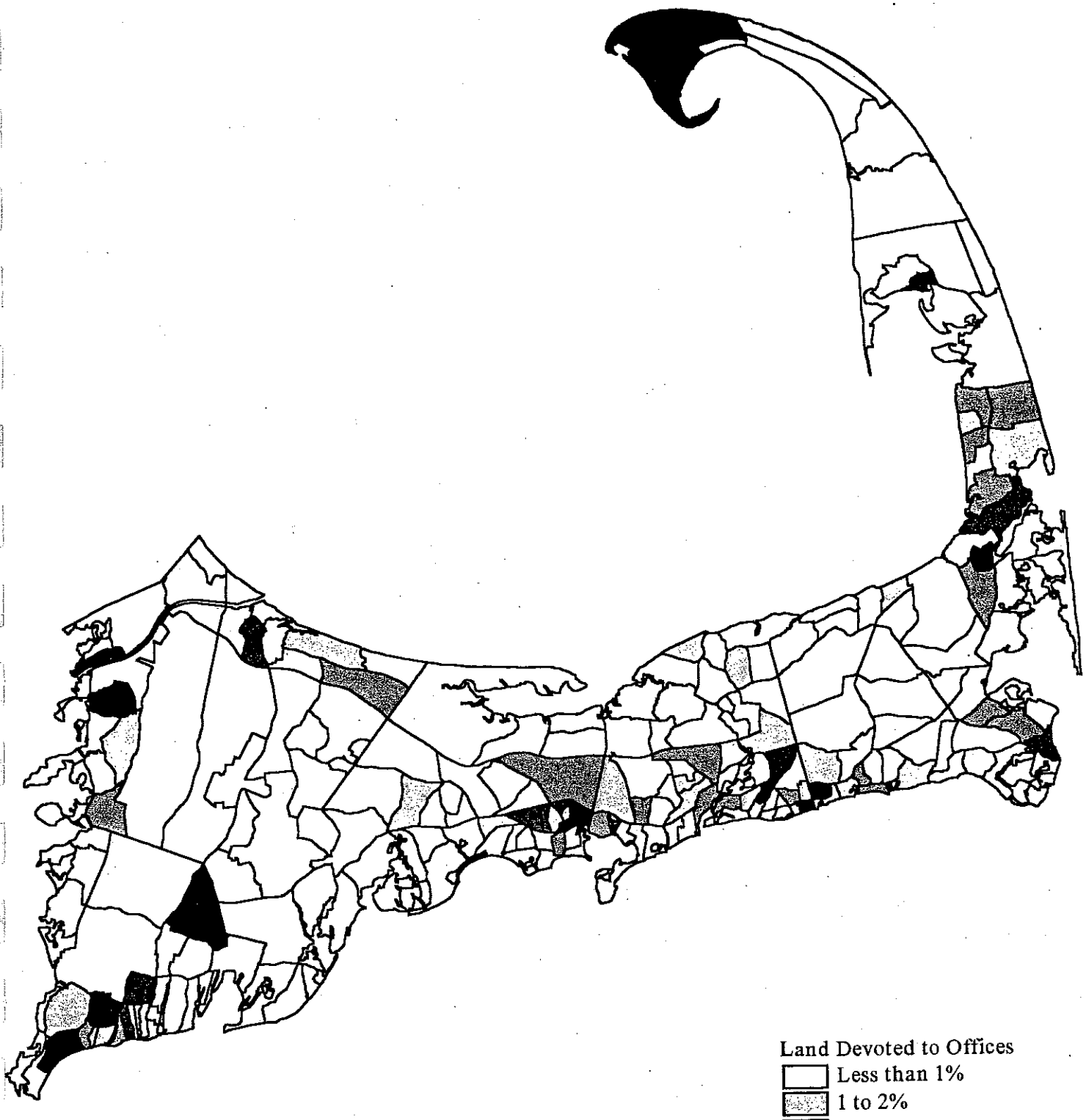
Land Uses on Cape Cod (1990): Lodging (Hotels/Motels/Resorts)

Cape Cod Commission
Regional Transportation Model



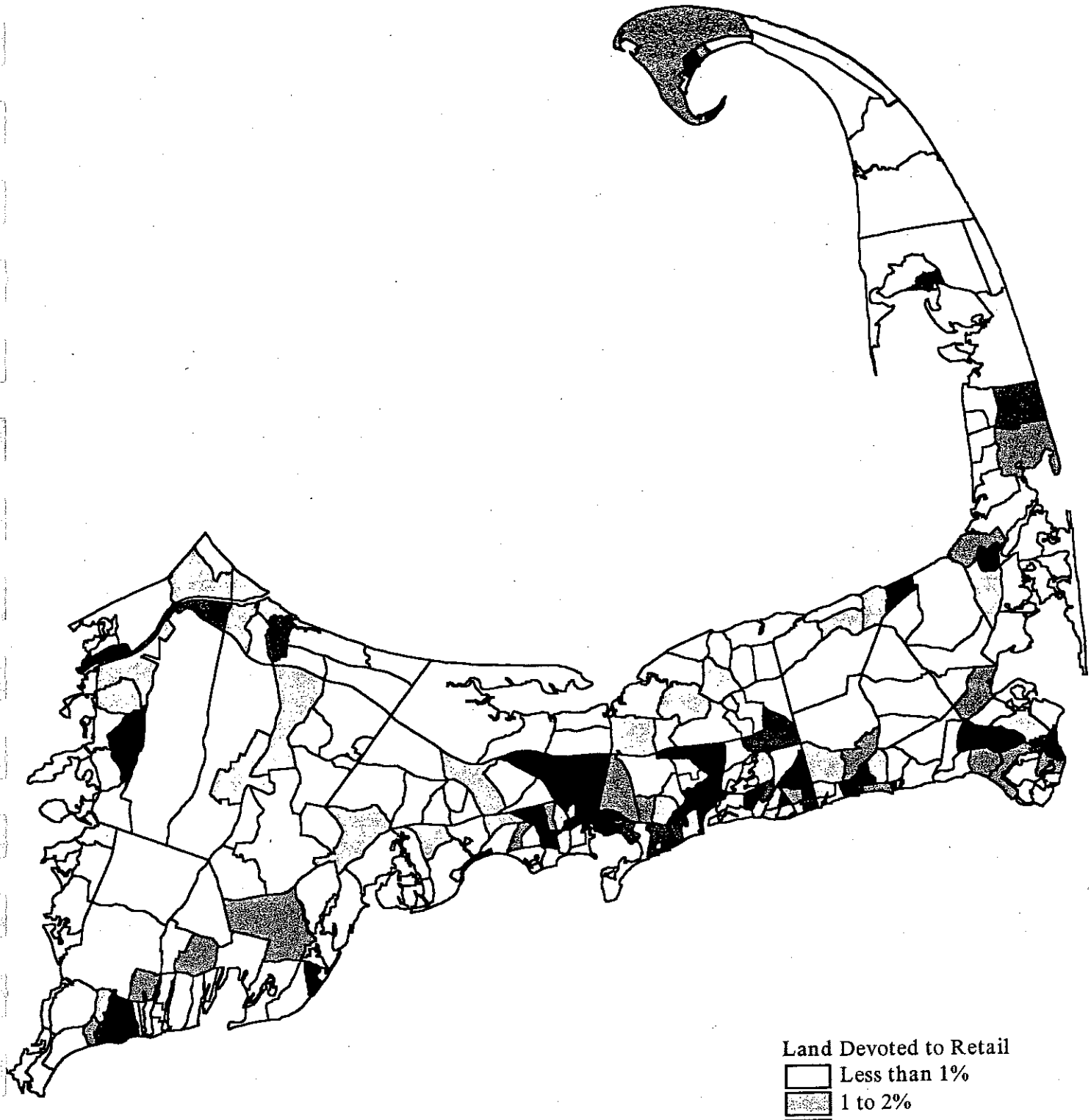
Land Uses on Cape Cod (1990): Office Uses

Cape Cod Commission
Regional Transportation Model



Land Uses on Cape Cod (1990): Retail Uses

Cape Cod Commission
Regional Transportation Model

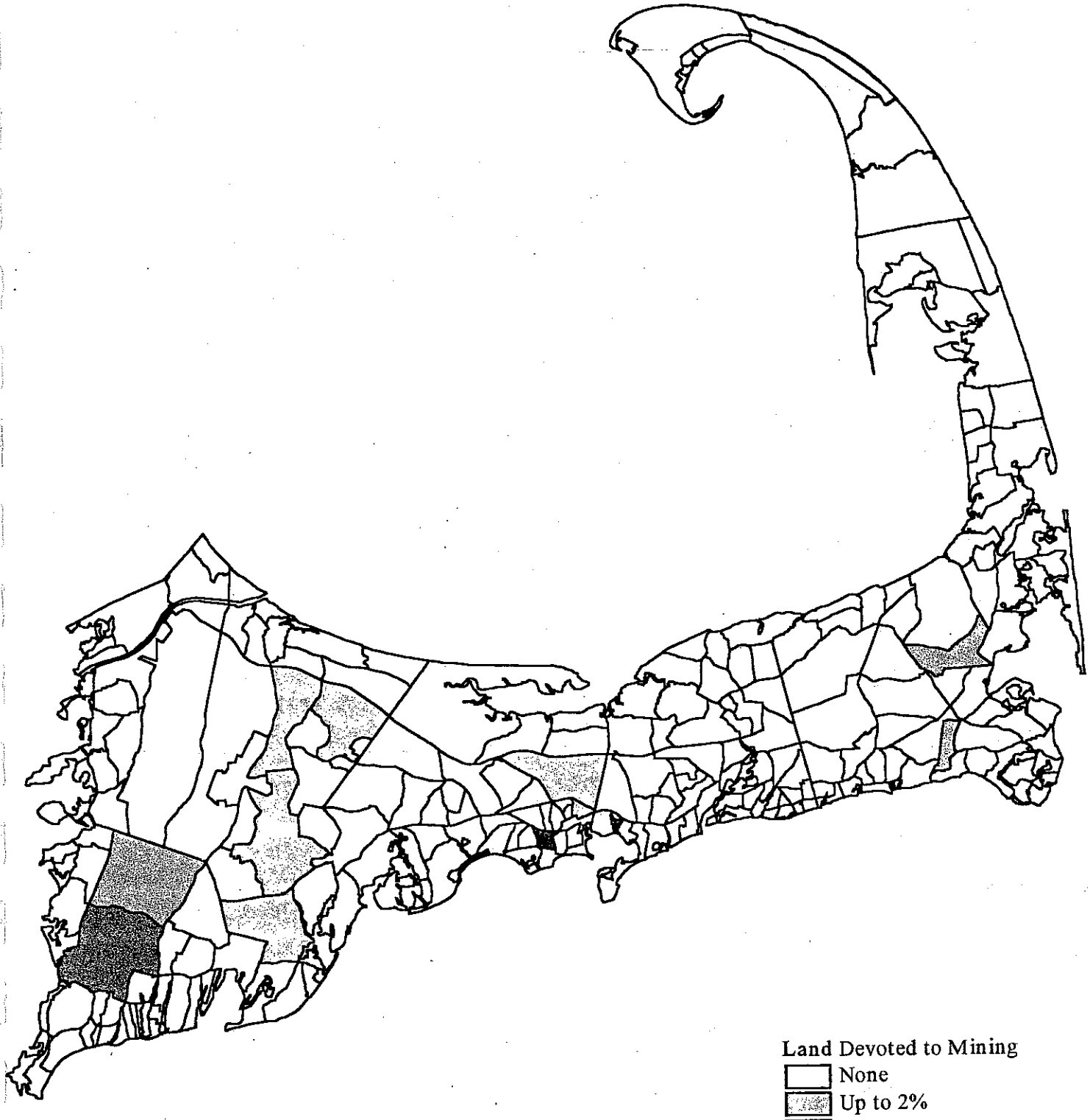


Land Uses on Cape Cod (1990): Manufacturing Uses

Cape Cod Commission
Regional Transportation Model

Land Uses on Cape Cod (1990): Mining Uses

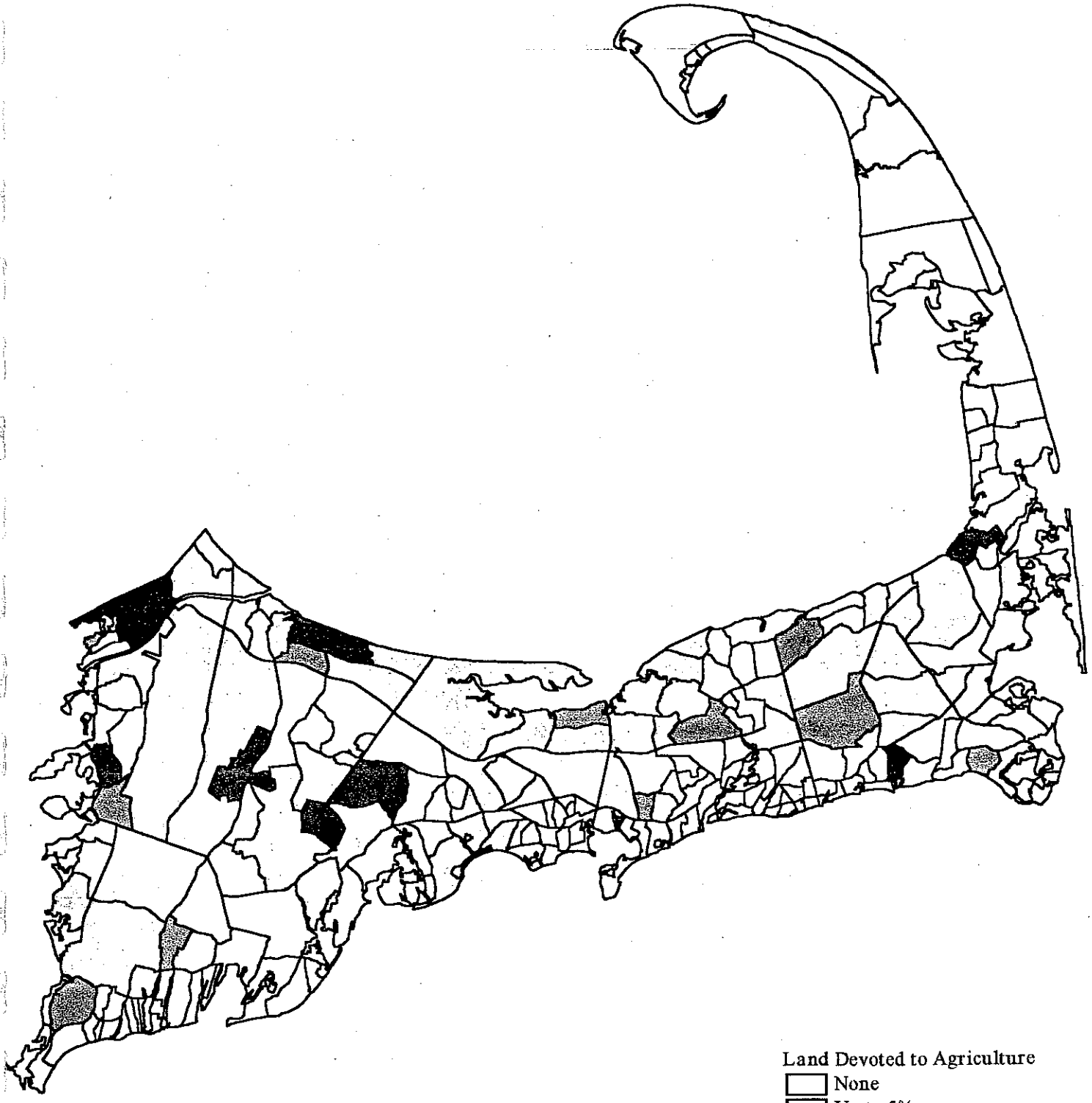
Cape Cod Commission
Regional Transportation Model



12

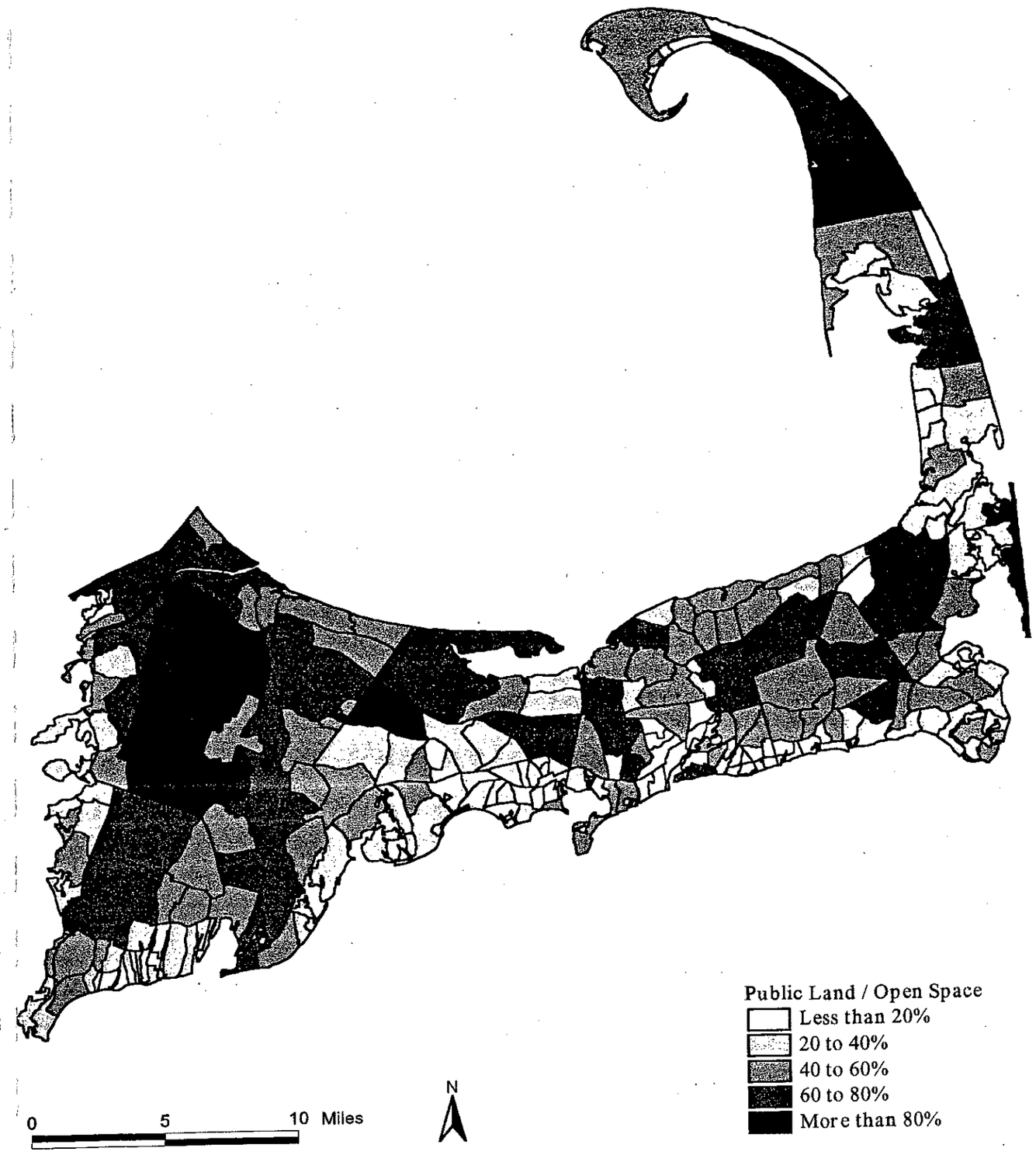
Land Uses on Cape Cod (1990): Agricultural Uses

Cape Cod Commission
Regional Transportation Model



Land Uses on Cape Cod (1990): Public Land or Open Space

Cape Cod Commission
Regional Transportation Model



Transit

- Transit Task Force

Cape Cod Transit Task Force

The Task Force members are a diverse group with respect to their primary positions and, for that reason, it is expected that they will provide a fresh look at transit needs which will be incorporated in to the planning process. The group recognizes that an overly ambitious approach may not be effective and to create realistic objectives the Task Force will rely heavily on local and state officials with transit experience to temper the ambitious with the practical.

The Task Force is appointed by the Massachusetts Secretary of Transportation and is composed of decision makers from local, state, and federal agencies as well as local business with an interest in improving public transportation. The Task Force will therefore be able to provide the support to ensure implementation of their recommendations.

Goals and Objectives For Public Transportation on Cape Cod

1. Reduce auto dependency by providing mobility options.

2. Mitigate seasonal traffic by attracting people to the region without cars, and by providing seasonal public transportation options.

3. Meet the needs of the year-round population for public transportation, especially the needs of those who are "transit dependant" and in need of human services.

4. Develop coordination, communication, and cooperation between regional public transportation providers.

5. Incorporate smart growth and land use planning decisions into the development of public transportation.

CAPE COD REGIONAL TRANSIT AUTHORITY
585 MAIN STREET (RTE. 6A)
OLD DENNIS COURT
P.O. BOX 2006, DENNIS, MA 02638
(508) 385-8311 FAX (508) 385-1812
ccrta@capecod.net

September 21, 2000

Kevin J. Sullivan
Secretary of Transportation
10 Park Plaza, Room 3170
Boston, MA 02116

Dear Secretary Sullivan:

On February 14, 2000 you participated in a Transit Summit for Cape Cod that was held to begin the development of a community consensus on the future of public transportation. One of the directives from the Transit Summit was the development of a Region Wide Public Transit Plan for improved public transportation. This plan would include Cape Cod, service to the islands of Martha's Vineyard and Nantucket, and Southeastern Massachusetts.

An "ad hoc" committee has been meeting to address the Transit Summit strategies, principally the development of a Public Transit Plan with a goal to begin on October 1, 2000. The Cape Cod Regional Transit Authority Advisory Board voted unanimously on September 20, 2000 to request that you appoint a Task Force to Help develop the Plan. It is the feeling of the Advisory Board and members of the committee that recognition by you of the importance of public transit with the creation of this Task force, will be essential in achieving our fundamental goal of developing and implementing its recommendations.

The Task Force will be responsible for:

- Negotiating a scope of services with a qualified consultant to develop a 5-year public transportation plan and a long-range public transportation plan.
- Facilitating the funding of the plans.
- Assisting the consultant in obtaining information required for the plan.
- Serving as a steering committee throughout the development of the plans.
- Amending the consultant scope of services as required.
- Holding public meetings to present plan findings and receive comments.
- Pursuing the implementation of the plan recommendations.

I hope you will consider our request and I look forward to participating with you and your staff in developing a Plan that will address the unique public transportation needs of the Cape Cod region.

Sincerely,

Robert W. Parady

Robert Parady
Chairman
Cape Cod Regional Authority Advisory Board

JGP/jp

The Commonwealth of Massachusetts
Executive Office of Transportation and Construction
Ten Park Plaza, Boston MA 02116-3969
Office of the Secretary

Argeo Paul Cellucci
Governor

Jane Swift
Lieutenant Governor

Kevin J. Sullivan
Secretary and MBTA Chairman

October 18, 2000

Robert Parady
Chairman, Cape Cod Regional Transit Authority Advisory Board
585 Main Street (Rte.6A) Old Dennis Court
P.O. Box 2006
Dennis, MA 02638

Dear Chairman Parady:

Thank you for your letter of September 21, 2000 relative to the creation of a Cape Cod Transit Task Force. I was pleased to participate in the Transit Summit held this past February and remain encouraged that the development of a Regional Transit Plan will significantly enhance transportation services in Southeastern Massachusetts.

Cape Cod and the Islands is by far the fastest growing region in the Commonwealth with a 15% population increase during the past decade. Considering that statewide population growth increased approximately 3% during the same period underscores our collective challenge. In addition, traffic congestion is no longer just a seasonal concern. It is imperative that new perspectives on transportation needs in your region must be considered and ultimately incorporated into the strategic plan for service.

Members of my staff have provided me with minutes from the "ad hoc" meetings that have been held since the Transit Summit. I am pleased to appoint the membership of the Cape Cod Transit Task Force and look forward to working with you in an effort to improve mobility options as well as develop a cost effective multimodal transportation plan.

Sincerely,

Kevin J. Sullivan
Secretary

Telephone (617) 973-7000 TDD (617) 973-7306 Telefax (617) 973-8445

CAPE COD TRANSIT TASK FORCE

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Len Stewart
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Woods Hole, MA 02543
(508) 548-5011

Douglas Kelleher
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John Kennedy
Cape Cod Central Railroad
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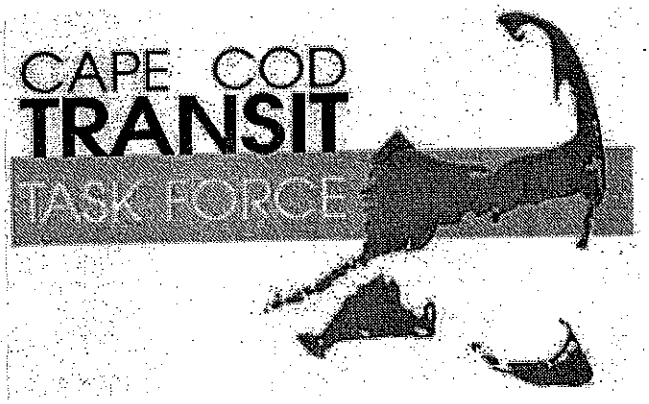
Hyannis, MA 02601
(508) 771-3800

CCRTA Advisory Board Chairman
or Designee
P.O. Box 2006
Dennis, MA 02638
(508) 385-8311



This page provides information and links to websites on transit planning for Cape Cod. Additional links or comments should be sent to Clay Schofield or to: Cape Cod Transit Task Force, PO BOX 226, Barnstable, MA 02630-0226.

On February 14, 2000 a Transit Summit was held to develop a community consensus on the future of public transportation. One of the directives from the Transit Summit was the development of a "Proper Plan" for improved public transportation. This plan would include Cape Cod, the islands of Martha's Vineyard and Nantucket, and Southeastern Massachusetts. The following goals and objective were identified at the Summit and have been adopted by the Cape Cod Transit Task Force.

Goals and Objectives

For Public Transportation on Cape Cod

1. Reduce auto dependancy by providing mobility options.
2. Mitigate seasonal traffic by attracting people to the region without cars, and by providing seasonal public transportation options.
3. Meet the needs of the year-round population for public transportation, especially the needs of those who are "transit dependant" and in need of human services.
4. Develop coordination, communication, and cooperation between regional public transportation providers.
5. Incorporate smart growth and land use planning decisions into the development of public transportation.

Task Force

The Task Force was appointed by Massachusetts Secretary of Transportation Kevin Sullivan and is composed of representatives from the private sector as well as local and state agencies with an interest in improving public transportation. The first priority of the Task Force is to create a short-term strategy for improving public transportation on Cape Cod.

Members

- Congressman Bill Delahunt
- Secretary of Transportation Kevin Sullivan
- Mass. Highway Dept.
- Cape Cod Commission
- Cape Cod Central Railroad
- Cape Cod Chamber of Commerce
- South Eastern Massachusetts Private Carrier Association
- Barnstable County Assembly of Delegates
- Lower Cape Health and Services Coalition
- Barnstable County Human Services
- Cape Cod National Seashore
- Steamship Authority
- Cape Cod RTA
- Transit Dependant Consumer

Participating Members Websites

- Cape Cod Regional Transit Authority
- Cape Cod Commission
- Massachusetts Executive Office of Transportation and Construction
- Massachusetts Highway Department
- Cape Cod Chamber of Commerce
- Barnstable County Human Services
- Cape Cod Central Railroad
- Cape Air
- Plymouth and Brockton Street Railway Company
- Steamship Authority

Summit II

The second Transit Summit is being planned!

The preliminary findings and recommendations of the Cape Cod Transit Task Force will be presented at this public meeting. Summit II will be held the morning of March 5, 2001 at the Sheraton Hyannis Resort located off the West End Rotary in Hyannis. The West End Rotary is served by the Cape Cod Regional Transit Authority Villager Line.

Additional information on Transit Summit II will be posted here as it becomes available

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Other Links of Interest:

- Cape Cod SmartGuide - "Car-Free Ways Around the Cape & Islands"
- GoCapeCod - Cape Cod Transportation Information Center

[back to top of page]

THE MARTHA'S VINEYARD COMMISSION

P. O. BOX 1447, OAK BLUFFS, MASSACHUSETTS 02557 • PHONE (508) 693-3453 • FAX (508) 693-7894

1974 25 1999

Together we achieve the extraordinary

2 November 2000

Mr. Mark Forest
Mr. Thomas Cahir
Co-Chairs
Cape Cod Transit Task Force
Post Office Box 226
Barnstable, MA 02630

re: Task Force

Gentlemen:

It was with great interest that I noted the creation of the Cape Cod Transit Task Force and the charge which has been presented to the members thereof.

The Martha's Vineyard Commission, the Vineyard community as a whole, and the various agencies involved with planning and operational aspects of transportation and transit have long been concerned with the impact of increased vehicular usage and what that means for the communities involved as well as the Island as a whole. The concerns are, however, not limited to those affecting the Island solely. There is an understanding of the same basic concerns of the Cape side communities and their desires to reduce the impact of traffic-induced strangulation. As the Cape is a destination point and a terminus, so is the Island a terminus when it comes to the issue of traffic congestion and impacts.

The Martha's Vineyard Commission and the Island leadership are, however, cognizant of the fact that no truly comprehensive steps can be taken without that understanding and consideration of the potential impacts actions here may have on other areas, and vice versa.

The Island of Martha's Vineyard as well as our sister Island of Nantucket have taken major steps to improving the movement of persons on our respective Islands via the institution of public transportation that is efficient, cost-effective, frequent and reliable. Both Islands have addressed the issues related to limitations on vehicles coming to the Islands. Both Islands have maintained an on-going dialogue with the Steamship Authority aimed at the establishment of a truly seamless transportation system to and from the Islands. Both Islands strive for and desire a truly intermodal transportation system that involves not only the Island but the Cape as well.

The Martha's Vineyard Commission, through the adopted policies and action plans of the Island Regional Plan, has long espoused an effective, seamless intermodal system of moving persons from one place to another. The Commission has encouraged the use of and has conducted origin-destination studies to determine the geographic origins of tourists and visitors and, using that information, encourage off-Island rail, bicycle and bus systems that would serve their travel routes.

It is therefore with all due respect that the Martha's Vineyard Commission urges the inclusion of the Nantucket Planning and Economic Development Commission (NP&EDC) and the Martha's Vineyard Commission (MVC) as invitees to the meetings of the Task Force.

Yours very truly,

Charles W. Clifford
Executive Director

ROUTE		1997				1998			Difference 1997 to 1998*
	JULY	AUGUST	SEPT	Total 1997	JULY	AUGUST	SEPT	Total 1998	
SeaLine	2,804	2,897	3,204	8,905	2,395	2,454	2,961	7,810	(1,095)
H2O Line	1,465	1,663	1,880	5,008	2,278	2,364	2,486	7,128	2,120
Villager, Barns	1,227	1,158	2,381	4,766	1,411	1,339	2,244	4,994	228
Hy-Ptown, P&B	5,432	6,416	3,460	15,308	5,911	6,500	3,500	15,911	603
COD, Dennis	2,359	2,180	48	4,587	1,657	1,574	223	3,454	(1,133)
HAT, Hyannis	6,813	7,385	188	14,386	8,074	9,502	1,890	19,466	5,080
Mashpee	1,701	1,619	44	3,364	1,208	962	121	2,291	(1,073)
WHOOSH, Falm	13,843	14,885	2,906	31,634	14,026	14,262	3,677	31,965	331
YES, Yarmouth	6,467	6,397	187	13,051	5,263	5,959	1,227	12,449	(602)
Total	42,111	44,600	14,298		42,223	44,916	18,329		
overall services / passengers per day	1,358	1,439	477		1,362	1,449	611		
*Check with CCRTA on individual service changes									

Commuters

Working in Barnstable, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST
Barnstable	12,568			
Yarmouth	2,885	E	2,885	0
Sandwich	1,701	W	0	1,701
Off-Cape, External	1,520	W	0	1,520
Dennis	1,028	E	1,028	0
Mashpee	919	W	0	919
Falmouth	864	W	0	864
Harwich	530	E	530	0
Brewster	400	E	400	0
Bourne	397	W	0	397
Orleans	195	E	195	0
Eastham	144	E	144	0
Chatham	118	E	118	0
Total from these towns	23,269		5,300	5,401
% of total employed	99.70%			
Total # working in town	23,339			
	based on 1990 U. S. Census			
Wellfleet	45	E	45	0
Truro	13	E	13	0
Provincetown	12	E	12	0
Islands	0		0	0
Total from these towns	70		70	0
% of total employed	0.30%			
	100.00%			
Total # working in town	23,339		5,370	5,401
1990 town population	40,949			
% living & working in town	30.7%			

Working in Bourne, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Bourne	2,843				
Off-Cape, External	1,679	W	0	1,679	
Falmouth	646	E	646	0	
Sandwich	481	E	481	0	
Barnstable	307	E	307	0	
Mashpee	147	E	147	0	
Total from these towns	6,103		1,581	1,679	
% of total employed	97.31%				
Total # working in town	6,272				
	based on 1990 U. S. Census				
Yarmouth	53	E	53	0	
Dennis	32	E	32	0	
Harwich	39	E	39	0	
Chatham	0	E	0	0	
Brewster	32	E	32	0	
Orleans	5	E	5	0	
Eastham	8	E	8	0	
Wellfleet	0	E	0	0	
Truro	0	E	0	0	
Provincetown	0	E	0	0	
Islands	0	E	0	0	
Total from these towns	169		169	0	
% of total employed	2.69%				
	100.00%				
Total # working in town	6,272		1,750	1,679	
1990 town population	16,064				
% living & working in town	17.7%				

Working in Brewster, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Brewster	1,236				
Orleans	209	E	209	0	
Dennis	178	W	0	178	
Harwich	150	E	150	0	
Total from these towns	1,773		359	178	
% of total employed	81.59%				
Total # working in town	2,173				
	based on 1990 U. S. Census				
Bourne	6	W	0	6	
Sandwich	18	W	0	18	
Falmouth	24	W	0	24	
Mashpee	0	W	0	0	
Barnstable	83	W	0	83	
Yarmouth	61	W	0	61	
Chatham	33	E	33	0	
Eastham	72	E	72	0	
Wellfleet	29	E	29	0	
Truro	5	E	5	0	
Provincetown	0	E	0	0	
Islands	0	W	0	0	
Off-Cape, External	69	W	0	69	
Total from these towns	400		139	261	
% of total employed	18.41%				
	100.00%				
Total # working in town	2,173		498	439	
1990 town population	8,440				
% living & working in town	14.6%				

EMPLOYEES-by approach direction

Chatham

Working in Chatham, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Chatham	1,660				
Harwich	362	W	0	362	
Brewster	228	W	0	228	
Dennis	176	W	0	176	
Orleans	149	E	149	0	
Total from these towns	2,575		149	766	
% of total employed	86.35%				
Total # working in town	2,982	based on 1990 U. S. Census			
Bourne	13	W	0	13	
Sandwich	38	W	0	38	
Falmouth	11	W	0	11	
Mashpee	67	W	0	67	
Barnstable	76	W	0	76	
Yarmouth	71	W	0	71	
Eastham	53	E	53	0	
Wellfleet	0	E	0	0	
Truro	0	E	0	0	
Provincetown	15	E	15	0	
Islands	0	W	0	0	
Off-Cape, External	63	W	0	63	
Total from these towns	407		68	339	
% of total employed	13.65%				
	100.00%				
Total # working in town	2,982		217	1,105	
1990 town population	6,579				
% living & working in town	25.2%				

Working in Dennis, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Dennis	2,039				
Yarmouth	853	W	0	853	
Barnstable	345	W	0	345	
Harwich	298	E	298	0	
Brewster	288	E	288	0	
Off-Cape External	116	W	0	116	
Total from these towns	3,939		586	1,314	
% of total employed	89.32%				
Total # working in town	4,410				
	based on 1990 U. S. Census				
Bourne	29	W	0	29	
Sandwich	86	W	0	86	
Falmouth	16	W	0	16	
Mashpee	62	W	0	62	
Chatham	82	E	82	0	
Orleans	78	E	78	0	
Eastham	79	E	79	0	
Wellfleet	39	E	39	0	
Truro	0	E	0	0	
Provincetown	0	E	0	0	
Islands	0	W	0	0	
Total from these towns	471		278	193	
% of total employed	10.68%				
	100.00%				
Total # working in town	4,410		864	1,507	
1990 town population	13,864				
% living & working in town	14.7%				

Working in Eastham, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Eastham	631				
Orleans	165	W	0	165	
Brewster	100	W	0	100	
Total from these towns	896		0	265	
% of total employed	72.20%				
Total # working in town	1,241				
	based on 1990 U. S. Census				
Bourne	0	W	0	0	
Sandwich	6	W	0	6	
Falmouth	0	W	0	0	
Mashpee	0	W	0	0	
Barnstable	13	W	0	13	
Yarmouth	0	W	0	0	
Dennis	31	W	0	31	
Harwich	73	W	0	73	
Chatham	45	W	0	45	
Wellfleet	85	E	85	0	
Truro	13	E	13	0	
Provincetown	31	E	31	0	
Islands	0	W	0	0	
Off-Cape External	48	W	0	48	
Total from these towns	345		129	216	
% of total employed	27.80%				
	100.00%				
Total # working in town	1,241		129	481	
1990 town population	4,462				
% living & working in town	14.1%				

EMPLOYEES-by approach direction

Working in Falmouth, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Falmouth	8,926				
Off-Cape, External	1,257	W	0	1,257	
Bourne	1,011	W	0	1,011	
Mashpee	626	E	626	0	
Barnstable	547	E	547	0	
Sandwich	521	W	0	521	
Yarmouth	110	E	110	0	
Total from these towns	12,998		1,283	2,789	
% of total employed	98.94%				
Total # working in town	13,137				
	based on 1990 U. S. Census				
Dennis	19	E	19	0	
Harwich	48	E	48	0	
Chatham	4	E	4	0	
Brewster	22	E	22	0	
Orleans	15	E	15	0	
Eastham	8	E	8	0	
Wellfleet	0	E	0	0	
Truro	0	E	0	0	
Provincetown	0	E	0	0	
Islands	23	W	0	23	
Total from these towns	139		116	23	
% of total employed	1.06%				
	100.00%				
Total # working in town	13,137		1,399	2,812	
1990 town population	27,960				
% living & working in town	31.9%				

Working in Harwich, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Harwich	1,485				
Dennis	348	W	0	348	
Chatham	189	E	189	0	
Yarmouth	165	W	0	165	
Brewster	154	W	0	154	
Barnstable	147	W	0	147	
Off-Cape, External	127	W	0	127	
Total from these towns	2,615		189	941	
% of total employed	90.52%				
Total # working in town	2,889				
	based on 1990 U. S. Census				
Bourne	21	W	0	21	
Sandwich	31	W	0	31	
Falmouth	12	W	0	12	
Mashpee	19	W	0	19	
Orleans	94	E	94	0	
Eastham	84	E	84	0	
Wellfleet	5	E	5	0	
Truro	8	E	8	0	
Provincetown	0	E	0	0	
Islands	0	W	0	0	
Total from these towns	274		191	83	
% of total employed	9.48%				
	100.00%				
Total # working in town	2,889		380	1,024	
1990 town population	10,275				
% living & working in town	14.5%				

Working in Mashpee, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Mashpee	858				
Falmouth	487	W	0	487	
Barnstable	380	E	380	0	
Sandwich	153	W	0	153	
Off-Cape External	141	W	0	141	
Total from these towns	2,019		380	781	
% of total employed	91.81%				
Total # working in town	2,199				
	based on 1990 U. S. Census				
Bourne	69	W	0	69	
Yarmouth	51	E	51	0	
Dennis	22	E	22	0	
Harwich	5	E	5	0	
Chatham	17	E	17	0	
Brewster	0	E	0	0	
Orleans	0	E	0	0	
Eastham	14	E	14	0	
Wellfleet	0	E	0	0	
Truro	2	E	2	0	
Provincetown	0	E	0	0	
Islands	0	W	0	0	
Total from these towns	180		111	69	
% of total employed	8.19%				
	100.00%				
Total # working in town	2,199		491	850	
1990 town population	7,884				
% living & working in town	10.9%				

Working in Orleans, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Orleans	1,332				
Brewster	827	W	0	827	
Eastham	528	E	528	0	
Harwich	454	W	0	454	
Chatham	185	W	0	185	
Barnstable	136	W	0	136	
Dennis	127	W	0	127	
Wellfleet	125	E	125	0	
Off-Cape External	115	W	0	115	
Yarmouth	113	W	0	113	
Total from these towns	3,942		653	1,957	
% of total employed	96.90%				
Total # working in town	4,068				
	based on 1990 U. S. Census				
Bourne	23	W	0	23	
Sandwich	24	W	0	24	
Falmouth	18	W	0	18	
Mashpee	8	W	0	8	
Truro	35	E	35	0	
Provincetown	0	E	0	0	
Islands	18	W	0	18	
Total from these towns	126		35	91	
% of total employed	3.10%				
	100.00%				
Total # working in town	4,068		688	2,048	
1990 town population	5,838				
% living & working in town	22.8%				

Working in Sandwich, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Sandwich	2,283				
Off-Cape, External	735	W	0	735	
Barnstable	419	E	419	0	
Bourne	334	W	0	334	
Falmouth	167	E	167	0	
Mashpee	119	E	119	0	
Total from these towns	4,057		705	1,069	
% of total employed	95.41%				
Total # working in town	4,252				
	based on 1990 U. S. Census				
Yarmouth	96	E	96	0	
Dennis	52	E	52	0	
Harwich	8	E	8	0	
Chatham	0	E	0	0	
Brewster	26	E	26	0	
Orleans	6	E	6	0	
Eastham	7	E	7	0	
Wellfleet	0	E	0	0	
Truro	0	E	0	0	
Provincetown	0	E	0	0	
Islands	0	E	0	0	
Total from these towns	195		195	0	
% of total employed	4.59%				
	100.00%				
Total # working in town	4,252		900	1,069	
1990 town population	15,489				
% living & working in town	14.7%				

Working in Truro, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Truro	259				
Total from these towns	259				
% of total employed	66.07%				
Total # working in town	392				
	based on 1990 U. S. Census				
Bourne	0	W	0	0	
Sandwich	0	W	0	0	
Falmouth	0	W	0	0	
Mashpee	0	W	0	0	
Barnstable	0	W	0	0	
Yarmouth	0	W	0	0	
Dennis	9	W	0	9	
Harwich	0	W	0	0	
Chatham	7	W	0	7	
Brewster	14	W	0	14	
Orleans	0	W	0	0	
Eastham	42	W	0	42	
Wellfleet	13	W	0	13	
Provincetown	21	E	21	0	
Islands	0	W	0	0	
Off-Cape External	27	W	0	27	
Total from these towns	133		21	112	
% of total employed	33.93%				
	100.00%				
Total # working in town	392		21	112	
1990 town population	1,573				
% living & working in town	16.5%				

Working in Wellfleet, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Wellfleet	622				
Eastham	111	W	0	111	
Total from these towns	733		0	111	
% of total employed	76.43%				
Total # working in town	959				
	based on 1990 U. S. Census				
Bourne	8	W	0	8	
Sandwich	0	W	0	0	
Falmouth	0	W	0	0	
Mashpee	0	W	0	0	
Barnstable	0	W	0	0	
Yarmouth	0	W	0	0	
Dennis	0	W	0	0	
Harwich	16	W	0	16	
Chatham	7	W	0	7	
Brewster	11	W	0	11	
Orleans	31	W	0	31	
Truro	66	E	66	0	
Provincetown	33	E	33	0	
Islands	0	W	0	0	
Off-Cape External	54	W	0	54	
Total from these towns	226		99	127	
% of total employed	23.57%				
	100.00%				
Total # working in town	959		99	238	
1990 town population	2,493				
% living & working in town	24.9%				

Working in Yarmouth, living in:	# of persons	east west	Commuters FROM EAST	Commuters FROM WEST	
Yarmouth	3,494				
Barnstable	1,380	W	0	1,380	
Dennis	995	E	995	0	
Off-Cape, External	494	E	494	0	
Brewster	243	E	243	0	
Harwich	232	E	232	0	
Sandwich	225	W	0	225	
Mashpee	170	W	0	170	
Bourne	131	W	0	131	
Total from these towns	7,364		1,964	1,906	
% of total employed	96.67%				
Total # working in town	7,618				
	based on 1990 U. S. Census				
Falmouth	75	W	0	75	
Chatham	54	E	54	0	
Orleans	34	E	34	0	
Eastham	73	E	73	0	
Wellfleet	7	E	7	0	
Truro	11	E	11	0	
Provincetown	0	E	0	0	
Islands	0	W	0	0	
Total from these towns	254		179	75	
% of total employed	3.33%				
	100.00%				
Total # working in town	7,618		2,143	1,981	
1990 town population	21,174				
% living & working in town	16.5%				

Working Islands, Boston, other off-Cape, living in:	# of persons			Islands	Boston	Other off-Cape
Bourne	2,366			17	327	2022
Sandwich	1,883			5	355	1523
Falmouth	1,543			22	378	1143
Mashpee	671			0	132	539
Barnstable	1,945			27	514	1404
Yarmouth	645			0	100	545
Dennis	409			0	49	360
Harwich	224			0	39	185
Chatham	136			0	18	118
Brewster	192			4	26	162
Orleans	166			0	33	133
Eastham	89			0	19	70
Wellfleet	16			8	0	8
Truro	47			0	13	34
Provincetown	114			13	8	93
Islands	9,166			9062	29	75
Total from Cape towns	10,446					
Total Cape & Islands	19,612					
% of total employed	98.87%					
Total # working ...	19,837	based on 1990 U. S. Census		9383	2040	8414
Off-Cape External	225			225		
Total from off Cape	225					
% of total employed	1.13%					
	100.00%					

Access Management

WHAT IS ACCESS MANAGEMENT?

Access Management is a way to organize traffic movements to better use existing roadway capacity which results in continued economic viability of adjacent land development. Corridors where access management is employed can sustain a higher level of development. Access management is also a way to lengthen the useful life of roadways without adding traffic lanes. This is accomplished through controlling access location and spacing, prohibiting turn movements, provision of turn lanes, location of median barriers, and access geometry.

Every driveway creates the potential for accidents at "conflict points", where the paths of traffic traveling the roadway intersect with the paths of traffic turning into and out of driveways. Reducing the number of driveways and increasing the spacing between driveways and intersections separates these conflict areas. See Figures 1 through 3.

The appropriate driveway spacing simplifies the driving task by locating driveways along the roadway such that drivers can monitor one driveway at a time, rather than several simultaneously. Longer driveway spacing reduces the amount of information a driver must acquire, process, and react to all together, thus, simplifying the driving task. Shorter driveway spacing requires the driver to watch for traffic entering and exiting several driveway locations at once while maintaining control of his own vehicle. Figure 4 shows examples of poor and better access management.

WHY DO ACCESS MANAGEMENT?

The economic viability of adjacent land development along a roadway experiencing traffic congestion and high accident rates will be impacted by further deterioration in

traffic conditions. Without restrictions on access, traffic congestion will increase, lower travel speeds will result, longer travel delays and higher accident rates will occur throughout the corridor.

With access management, a greater amount of development can be served by a roadway because a greater amount of traffic can be served with longer driveway spacing, better access location, coordinated traffic control and better driveway design. It is a valuable tool for preventing the loss of roadway capacity that often accompanies high traffic generating development. The loss of roadway capacity most often occurs along roadway corridors with numerous adjacent commercial development such as Route 28 in Yarmouth, Route 6 in Eastham, and Route 6A in Orleans.

Access management applied to arterial roads can maintain the roads function within the overall transportation system to serve through traffic, resulting in higher accessibility in the region. Access management measures that separate turning vehicles from through vehicles create more efficient flow of traffic and minimize accidents.

Barnstable County's Regional Policy Plan recommends that each town identify areas in need of access management techniques to minimize accidents and relieve traffic congestion. A critical time to consider access changes occurs when new development is proposed and when adjacent roadway and intersection improvements are proposed.

This technical bulletin is intended to promote awareness of the impact of continued uncontrolled access and consideration of access management as a way for local authorities to deal with congestion.

ACCESS MANAGEMENT TECHNIQUES

The most effective use of the following techniques is when new developments are being proposed, when redevelopment or change of use occurs, and when roadway and traffic control improvements are planned. Traffic impact studies provide an opportunity to address access management. Economic incentives may also be a feasible way to encourage access management for existing businesses.

RELATING ROADWAY FUNCTION WITH LAND ACCESS AND MOBILITY

The relationship between mobility and land access for various classifications of roadways is shown in Figure 5. Higher mobility is characterized by higher speeds and uniform traffic flows while land access requires low speeds and results in inconsistent flows. Roads serving high mobility traffic have fewer driveways than roads serving land access.

LOCATION OF INTERSECTING ROADWAYS

Providing desirable location and spacing of intersecting roadways can be achieved by establishing maximum intervals of local, collector and arterial roadways per mile. These measures can smooth traffic flow along the roadway.

LOCATION OF ACCESS DRIVEWAYS

The location of driveways directly affects the level of traffic congestion on the mainline roadway. The spacing of adjacent and opposing driveways, and the spacing of driveways and intersections influences accident potential. Driveway design techniques that limit the types of conflicts, reduce the frequency of conflicts and/or reduce the area of conflict at driveways include:

LOCATION OF MEDIAN BARRIERS ON HIGHER MOBILITY ROADS

Limiting or prohibiting certain turning maneuvers can be achieved through installation of median barriers that prohibit direct left-turn access onto the mainline and channelized median openings that prevent left-turn ingress/egress movements. Median barriers can be painted, raised curb, depressed, landscaped, or guardrail safety types. The application of the types of median barriers can be established for various roadway classifications. Minimum spacing and maximum number of median breaks per mile can be established to provide access to abutting properties and to maintain two-way progression. Minimum and desired median widths can also be established to ensure accommodation of left-turn lanes.

Intelligent Transportation Systems

Cape Cod Advanced Public Transportation Systems Project

The Cape Cod Advanced Public Transportation Systems (APTS) Project (CC_APTS) is a deployment of state of the art passenger transportation technology on Cape Cod, (Barnstable County) Massachusetts. It applies advanced technology that will improve intermodal transportation services for the Region's residents and visitors to the many tourist attractions of Cape Cod and the Islands (including the National Park Service's Cape Cod National Seashore). The project was initiated in 1997 by a public-private partnership comprised of the Cape Cod Regional Transit Authority, the GeoGraphics Laboratory at Bridgewater State College, First Transit, the Cape Cod Commission, the Cape Cod Chamber of Commerce, the Massachusetts Executive Office of Transportation and Construction, and the Joint Program Office for Intelligent Transportation Systems (JPO/ITS) of the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

Intermodal Services

The passenger transportation services of the region include the following:

- regional demand responsive services
- coordinated human services transportation
- regional fixed route bus services
- community bus services, including summer trolleys
- inter-city bus services to major metropolitan areas in the Northeastern U.S.
- inter-city rail services (nearby hi-speed Amtrak Northeast Corridor rail to Providence/Boston - Spring '00)
- ferry services (auto ferries and hi-speed catamarans to Nantucket and Martha's Vineyard islands)
- Council on Aging van and minibus services by local towns
- taxi and livery services throughout the region
- commercial airlines serving Boston, New York and the islands.
-

Problems and Issues

The problems and issues to be addressed by the CC_APTS project are:

- access to jobs for year round residents and the summer work force,
- integration of passenger transportation into an intermodal system by improved service design and effective and timely system information and payment mechanisms,
- severe traffic congestion in the summer on the region's highway system,
- air pollution from off-Cape sources and regional automobile emissions.

Technology Deployment

The deployment of APTS technology included as a part of the CC_APTS Project is as follows:

- A geographic information system (GIS) – based decision support system (DSS) on a local area network (LAN) environment.
- Global positioning systems (GPS)-based automatic vehicle location (AVL) for intermodal services.
- Upgraded paratransit scheduling and management information capabilities based on GIS technology with open data accessibility.
- Mobile data computers (MDC) for on-board vehicle data collection, downloading of paratransit scheduling data schedules and two way messaging, and emergency alarms, integrated with AVL.
- Advanced Travel Planning (ATP) based on GIS and the Internet.
- Electronic Payment Systems (EPS) or the "Cape Cod Smart Card" for market-based pricing and service planning strategies as a part of an overall tourist economy EPS application.

Project Accomplishments

By the Fall of 2000, the project had reached a number of milestones, including the following.

- The design and installation of a state-of-the-art (Y2K compliant) fast local area network (LAN).
- A demonstration of a GIS-based "decision support system" to provide solutions for access to training, jobs, and childcare for individuals transitioning from welfare.
- Completion of a report on communications infrastructure alternatives for APTS on Cape Cod.

- The first phase of a GPS-based intermodal automatic vehicle location and monitoring system was completed in time for the 1998 summer tourist system for all CCRTA regional bus routes, community bus and trolley services, and several paratransit vehicles. [1]
- The construction of a separate data radio system for AVL and MDCs in the Mid-Cape area and the deployment of all Phase I AVL mobile units on the dedicated data radio frequency for the 1999 summer tourist season.
- The data radio capital requirements were addressed through the purchase and installation of data radio base stations for the eastern and western portions of Cape Cod and the purchase of mobile data radios for the rest of the CCRTA's [90+] vehicle fleet.
- CCRTA and the GeoGraphics Lab at Bridgewater State College have developed a real-time AVL web-based GIS mapping prototype on the GeoLab web server.
- The CCRTA dedicated data radio system was extended throughout the Cape region for the optimum coverage (99/99) by the Spring of 2000.
- CCRTA participated in a cooperative purchase process for AVL/MDC with neighboring Greater Attleboro – Taunton RTA. The integrated AVL/MDC units will be deployed throughout the CCRTA in the fixed route and paratransit fleet (including electronic payment system functionality) by the Fall of 2000.
- Upgrade paratransit management software General Business Basic to Microsoft SQL on an NT Windows LAN server. File structure requirements for downloading vehicle manifests to mobile data terminals have been defined by CCRTA for MDC deployment during the summer/fall of 2000.

Work in Progress

- CCRTA and the GeoGraphics Lab are cooperating on the development and deployment of a low-cost web-based advanced travel planner (ATP) using state-of-the art GIS technology applied to tourist travel information and itinerary trip planning for access to jobs for individuals transitioning off welfare.
- CCRTA and the GeoGraphics Lab are cooperating on the development of and intranet application of GIS to integrate geospatial data from APTS as a decision support system for Access to Jobs management and evaluation. *(proposed)*
- An application for rural inter-city bus capital assistance [S.5311(f)] has been filed to add AVL/MDCs for all inter-city buses providing service from the Cape tip, through the Cape Cod National Seashore, to the urbanized area of Hyannis, through Plymouth, and on to metropolitan Boston and Logan International Airport. The AVL portion will use regional public CDPD networks and provide customers with vehicle locations through the CCRTA Transit Management Center and the GeoGraphics Labs WWW server. *(Unilaterally withdrawn by intercity carrier after approval of grant for FFY 2000.)*

Future Deployment Activities

The remaining CC_APTS component under development is the electronic payment systems (EPS). The CCRTA regional bus, community bus, summer trolleys, and demand-responsive vehicles will be EPS-ready by the fall of 2000 with the installation of integrated AVL/mobile data computers and the build out of a regional dedicated data radio system. A two-year CMAQ grant has been received to provide user-side subsidies using electronic payment systems to address summer traffic congestion and air quality issues using CCRTA's Transit ITS system. Cooperative efforts are underway with inter-regional carriers to the Cape and Islands to develop an inter-regional intermodal inter-line electronic payment system in the future. Additionally, a demonstration to use the CC_APTS infrastructure to coordinate human services transportation and public transportation through the Cape Cod Smart Card is under development.

Evaluation

The success of the project will be measured by its impact on the consumption, efficiency and effectiveness of intermodal passenger services within and throughout the Cape and Islands Region.

Contacts

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[1] An evaluation of the Phase I AVL deployment led to the decision not to exercise the Phase II and III AVL option to build out with Orbital Sciences TMS (*nee* Raytheon TMS). The project design was revised to specify an integrated AVL/MDC solution that better accommodates the demands of paratransit operations, as well as fixed route services at lower cost. Mentor Egineering of Calgary Canada was selected for Phase II and III to deploy their integrated AVL/MDC/Smartcard Reader.

Resource Library

Cape Cod Commission • Transportation Resource Library

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