OLD COLONY REGIONAL FREIGHT AND GOODS MOVEMENT STUDY

November 2015

Old Colony Planning Council
70 School Street
Brockton, MA 02301

Old Colony Regional Freight and Goods Movement Study

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Old Colony Planning Council
Title VI/ Nondiscrimination Coordinator
Pat Ciaramella
70 School Street
Brockton, MA 02301
508-583-1833 Extension 202
pciaramella@ocpcrpa.org

Title VI Specialist
MassDOT, Office of Diversity and Civil Rights
10 Park Plaza
Boston, MA 02116
857-368-8580
TTY: 857-368-0603
MASSDOT.CivilRights@state.ma.us

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Massachusetts Commission Against Discrimination (MCAD)
One Ashburton Place, 6th Floor
Boston, MA 02109
617-994-6000
TTY: 617-994-6196

Old Colony Regional Freight and Goods Movement Study
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Vietnamese: Nếu thông tin này là cần thiết trong một ngôn ngữ khác, xin vui lòng liên hệ với Pat Ciaramella tại 508-583-1833 mở rộng 202.

French: Si cette information est nécessaire dans une autre langue, s'il vous plaît communiquer avec Pat Ciaramella au 508-583-1833 extension 202.

Italian: Se questa informazione è necessaria in un'altra lingua, si prega di contattare Pat Ciaramella al 508-583-1833 Extension 202.

Khmer: ប្រសិនបើព័ត៌មាននេះត្រូវបានត្រូវការនៅក្នុងភាសាមួយផ្សេងទៀតសូមទាក់ទង Pat Ciaramella នៅផ្នែកបន្ថែម 508-583-1833 202 ។

Arabic: إذا كانت هناك حاجة هذه المعلومات في لغة أخرى، يرجى الاتصال بات Ciaramella.202 امتداد 1833-583-508 في

Updated February 2015

Old Colony Planning Council

Report Preparation and Analysis

Ray Guarino, Senior Transportation Planner
rguarino@ocpcrpa.org

Bruce Hughes, Economic Development/Community Planner
bhughes@ocpcrpa.org

Mapping and Graphics

Andrew Vidal, GIS Manager/Communications and IT Specialist
avidal@ocpcrpa.org

Old Colony Metropolitan Planning Organization

The Honorable William Carpenter	Mayor, City of Brockton
Kenneth Tavares	Chairman, Board of Selectmen, Plymouth
Daniel Salvucci	Vice Chairman, Board of Selectmen, Whitman
Eldon Moreira	Member, Board of Selectmen, West Bridgewater
Stephanie Pollack	Secretary and CEO, MassDOT
Timothy Tinlin	Highway Administrator, MassDOT
Reinald Ledoux, Jr.	Administrator, BAT
Lee Hartmann, AICP	President, OCPC

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Stoughton - *Alternate*	Marc Tisdelle
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Agency Representation

MassDOT	David Mohler, AICP
MassDOT	Sreelatha Allam
MassDOT District 5	Mary-Joe Perry
MassDOT District 5	Pamela Haznar, P.E.
MassDOT District 5	Timothy Kochan
BAT	Reinald Ledoux, Jr.
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DEP	Christine Kirby
EPA	Donald Cook
FHWA	Pamela Stephenson
FHWA	Michael Chong
FHWA	Leah Sirmin
FTA	Mary Beth Mello
FTA	Noah Berger
FTA	Nicolas Garcia
Brockton Traffic Commission	Captain Robert DiBari

OCPC Transportation Staff

Charles Kilmer, AICP	Assistant Director/ Transportation Program Manager
Eric Arbeene, AICP	Community Planner
Shawn Bailey	Assistant Transportation Planner
Paul Chenard	Transportation Planner
Jed Cornock	Senior Transportation Planner
Raymond Guarino	Senior Transportation Planner
William McNulty	Senior Transportation Planner
Kyle Mowatt	Transportation Planner
Jimmy Pereira	Community/ Transportation Planner
Andrew Vidal	GIS Manager/ Communications and IT Specialist

Old Colony Planning Council (OCPC)

OCPC Officers

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OCPC Staff

Pat Ciaramella	Executive Director
Janet McGinty	Fiscal Officer
Jane Linhares	Grants Monitor/ Secretary
Patrick Hamilton	AAA Administrator
Lila Burgess	Ombudsman Program Director
Jane Selig	Ombudsman Program Assistant
Jim Watson, AICP	Comprehensive Planning Supervisor
Eric Arbeene, AICP	Community Planner
Jimmy Pereira	Community/ Transportation Planner
Bruce Hughes	Economic Development/ Community Planner
Andrew Vidal	GIS Manager/ Communications and IT Specialist
Charles Kilmer, AICP	Assistant Director/ Transportation Program Manager
Ray Guarino	Senior Transportation Planner
William McNulty	Senior Transportation Planner
Paul Chenard	Transportation Planner
Kyle Mowatt	Transportation Planner
Shawn Bailey	Temporary Transportation Technician

Contents

OCPC Regional Freight and Goods Movement Study

1 Introduction

1.1 Purpose

The main purpose of the *OCPC Regional Freight and Goods Movement Study* is to integrate freight planning into the overall MPO planning process. The study will identify needs for long-term freight planning, which will result in the development of specific long-range transportation projects. In addition, potential funding sources for these projects will be identified and policy-based solutions will be developed to accommodate future levels of freight on the regional transportation system, emphasizing the conservation of highway capacity, the improvement of circulation and mobility, and the enhancement of safety for the traveling public. Freight mobility and the freight industry play an important role in the success of the region's economy. This study will focus on discerning the patterns and character of the movement of freight in, around, and through the region.

The federal highway authorization bill, Moving Ahead for Progress in the 21st Century Act (MAP-21), which was signed into law in 2012, established a national goal for freight movement and economic activity: "Freight movement and economic vitality – To improve the nation's freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development." This study will contribute toward fulfilling that goal by establishing specific objectives that discern regional freight movement needs and priorities.

This study will utilize past studies as well as other work relevant to freight movement completed on the state and regional level that is significant to the OCPC region. This includes the *OCPC 2002 Regional Truck Route Identification Study*, the *2012 Old Colony Regional Transportation Plan*, the OCPC Congestion Management Process, the OCPC Land Use Management System, the OCPC Safety Management System, the OCPC Pavement Management system, Road Safety Audits, as well as the *Massachusetts Freight Plan*, and the FWHA *Freight Analysis Framework.* According to the FHWA, the *Freight Analysis Framework* (FAF) "…integrates data from a variety of different sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation".

The requirements of the Metropolitan Planning Organization (MPO) planning process are described in the Code of Federal Regulations (CFR), Part 450. There are several references to freight in these regulations. According to the requirements, the metropolitan transportation plan shall, at a minimum, include:

- The projected transportation demand of persons and goods in the metropolitan planning area over the period of the transportation plan.
- Operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods).

The Moving Ahead for Progress in the 21st Century Act (MAP-21) is a long-term highway authorization act that funds surface transportation programs for the fiscal years (FY) 2013 and 2014. MAP-21 transforms the policy and programmatic framework for investments, as well as providing the necessary funds, to guide the growth and development of the country's vital transportation infrastructure. MAP-21 establishes an important new requirement for planning at all levels. States and MPOs are required to

develop, estimate, and periodically report performance measurements covering a range of transportation issues, including freight.

The National Freight Strategic Plan performance measurements required by MAP-21 have not yet been defined, but once they are defined, they will be offered as an acceptable formula for use by the states. In the interim, the U.S. DOT is encouraging states to develop performance measurements using their own analytical resources. The scarcity of freight data that can be readily utilized to develop a performance index is one of the concerns expressed by state officials. Freight data is scarce at the state level and even more so at the MPO level. Identifying or acquiring data that can be crafted into a satisfactory MPO freight performance index is an important goal of the freight action plan.

Crash data has been a basic tool to indicate parts of the road system that are not serving freight movements safely; however, more data is necessary to discern crash patterns, as well as timeliness of truck movements within the region. Regional traffic congestion is an ongoing concern, and an analysis of congestion within the region is included as part of federally mandated Congestion Management Process (CMP). It is assumed that these ongoing CMP efforts will support the MPO performance measurement requirements for regional traffic and freight movement.

2 Public Outreach

Public outreach is important for maintaining consistency in state, regional, and local plans and for initiating specific projects for inclusion in the region's Transportation Improvement Program (TIP). Public outreach is also essential for developing collaboration and consensus among stakeholders for the study process. It is important to identify key stakeholders, especially those who have the potential to be impacted by the study, those who are important in implementation of improvements, and those who have an interest in the study and process. OCPC has reached out to the business community, and the public at large to garner input in the study.

The public outreach process included the use of OCPC's website. A project web page was developed on OCPC's website that provided an overview of the project, and information for public input. The web-page fact sheet is included in the appendix to this report. Public outreach to disseminate information on the study and to garner input was also achieved via presentation at OCPC's Joint Transportation Committee meetings (JTC), OCPC's Comprehensive Economic Development Strategy Committee (CEDS), and the annual meeting of the Avon Industrial Park. The Joint Transportation Committee (JTC) is an advisory committee to the Old Colony Planning Council and the Metropolitan Planning Organization. The JTC provides a forum for citizen involvement in the in-depth and ongoing process of selecting and scheduling local and regional transportation projects through the development of the Transportation Improvement Program (TIP). The CEDS Committee serves as an idea and information exchange for agencies, firms, officials and individuals concerned with economic development in the District and advises the Council on economic development issues.

3 Performance Measurement

An effective measure of system performance is essential in evaluating the efficiency of the transportation system. The National Cooperative Freight Research Program (NCFRP) *Report 10, Performance Measure for Freight Transportation*, which was sponsored by the Research and Innovative technology Administration of the Transportation Research Board (TRB), outlines the complexities and difficulties in determining freight performance in a number of areas including; freight demand, freight efficiency, freight system condition, freight environmental impacts, freight safety, and the adequacy of

investment in the freight system. The study states that performance measurement systems should reflect a broad array of performance concerns. According to the study, there is no one agency or entity that has the mandate or resources to develop and sustain a comprehensive freight performance measurement system. Most agencies and trade organizations measure components of freight system performance, but no one agency has compiled a comprehensive reporting system. The study states that performance measurement systems are evolving over time and most agencies utilize existing standard systems that measure transportation system performance. The study cites previous experience such as those from private sector efforts to measure performance. Some of these experiences focused on system performance from the customer perspective and system indicators and data that were not integral to the organization often atrophied. Private companies struggled to get good data, even from within their own organization. Eight interviews were conducted with trucking company managers and executives for the study. Although the sample size was small, the results indicated that the companies rely heavily on those performance measures that provide specific insight into their particular freight operations such as efficiency/profitability and cost savings, customer service, competitiveness, and pricing.

The NCFRP study summarized a number of recommended performance measures for the development of a "Freight System Report Card" to centralize reporting on freight performance at the national level. These include the following:

- Freight volumes, including truck freight volumes, rail freight volumes, inland water freight, and containerized imports and exports.
- Efficiency measures including interstate highway speeds and bottlenecks.
- Rail freight market share.
- Freight system condition indicators such as bridge structural deficiencies and pavement conditions.
- Environmental measures such as truck emissions, particulates, NOx emissions, and VOCs and greenhouse gas emissions.
- Safety measures including truck injuries, fatal crash rates, and highway–rail at-grade incidents.
- Freight investment measures, including investments in the National Highway System (NHS), rail industry cost of capital, and investment to sustain inland waterway system.

Statewide and metropolitan measures summarized in the study include: Statewide freight growth for trucks, statewide corridor truck travel speeds, statewide crashes, and localized bottleneck analysis.

The Freight Analysis Framework (FAF) guidebook describes several measures for freight capacity including traffic volumes, volume to capacity ratios, average speed, and travel time and delay. Existing measures of performance and operability of the highway network for road users utilized by OCPC through its Management Systems program, bottleneck reduction program, traffic corridor studies, local transportation assistance program, and traffic data collection activities include:

- Number of crashes and, or crash rates
- Intersection delay and, or levels-of-service
- Bottlenecks, Congestion and, or Volumes/Capacity
- Pavement management condition
- Poor truck turning radii
- Height and Weight Restrictions
- Truck Route Restrictions

These standard performance measures will be utilized in this study by OCPC to evaluate the system the performance regarding freight movement within the OCPC region.

4 Freight Movement in Massachusetts

Trucking is the primary mode utilized for the movement of goods in the OCPC region. This is based upon analysis of the movement of freight by mode in Massachusetts. Table 1 summarizes the commodities in freight by millions of tons for all modes based on the Massachusetts Department of Transportation Freight Plan. Table 2 shows the top ten Massachusetts Commodities by Value in Millions of Dollars for 2007 based on the Massachusetts Department of Transportation Freight Plan.

Table 1 Top Ten Massachusetts Commodities for All Modes in Millions of Tons; 2007

Commodity	Tons (millions)	Percent Share
Petroleum or Coal Products	41.1	14.8%
Secondary Traffic	38.8	14.0%
Nonmetallic Minerals (stone, gravel)	35.2	12.6%
Food or Kindred Products	32.3	11.6%
Plastics, Chemicals or Allied Products	29.3	10.5%
Clay, Concrete, Glass, or Stone	27.1	9.8%
Pulp, Paper, or Allied Products	14.7	5.3%
Primary Metal Products	9.4	3.4%
Lumber or Wood Products	7.5	2.7%
Fabricated Metal Products	5.6	2.0%
Other	37.1	13.3%
Total	278.1	

Massachusetts Freight Plan Source: Global Insight TRANSEARCH, 2008 Release

Table 2 Top Ten Massachusetts Commodities by Value in Millions of Dollars; 2007

Commodity	Value (millions of dollars)	Percent Share
Electronics/Machinery	107,498	27.8%
Mixed Freight/Unknown	45,678	11.8%
Farm Products/Food/Beverages	41,351	10.7%
Textiles/Leather	33,135	8.6%
Chemicals/Pharmaceuticals/Fertilizer	29,298	7.6%
Precision Instruments	20,532	5.3%
Paper	19,439	5.0%
Miscellaneous Manufactured Products	16,931	4.4%
Transportation Equipment	16,090	4.2%
Base Metals	14,717	3.8%
Other	41,323	10.7%
Total	385,992	

Massachusetts Freight Plan Source: Global Insight TRANSEARCH, 2008 Release

Table 1 shows that petroleum and coal products make up the largest commodities of freight movement in Massachusetts by tonnage. These products total 41 million tons or 14.8 percent of all freight. Energy products support both economic and residential activity within Massachusetts. Secondary traffic and

nonmetallic minerals account for the second and third largest commodities making up 38.8 tons (14.0 percent) and 35.2 tons (12.6 percent), respectively. Table 2 shows that the top commodities shipped by value are vary greatly from the largest commodities by tonnage, with Electronics and Machinery, which are primarily shipped by truck, accounting for 27.8 percent of all value. Electronics and machinery are followed by mixed freight or unknown freight 11.8 percent, and farm products, food and beverages at 10.7 percent. These are followed closely by textiles and leather (8.6 percent) and chemicals-pharmaceuticals-fertilizers (7.6 percent). According to the Massachusetts Department of Transportation Freight Plan, Freight volumes are projected to increase by 70 percent by 2030. The plan cites a growth in Massachusetts as a consumer market, along with the needs of the state's value-added economy, which will result in projected growth in goods movement. The freight plan cites the state's third highest per capita income (27 percent higher than the U.S. average), and the Boston metropolitan area population, which is the 10th largest in the U.S. (over 4.5 million people). It is expected that the majority of freight will continue to be shipped by truck with 87 percent of goods in the Boston area shipped by truck (compared to the 85 percent national average.).

According to the Massachusetts Statewide Freight Plan, freight moved by trucks is highest on the Massachusetts Interstate system, particularly on the I-84 and I-90 east west corridor into the Boston. Figure 1 shows that the Route 24 corridor carries the most highway freight in the OCPC region with about 10 million to 30 million tons per year. The I-495 corridor, between I-95 and Route 24, carries about 1 to 10 million tons per year. The Route 3 Corridor also carries between 1 million and 10 million tons per year. The Route 106 corridor between I-95 and Route 104 in the Towns of Easton and West Bridgewater carries about 1 million to 10 million tons per year. The tonnage on Route 106 between Route 24 and Route 104 is expected to grow to over 10 million by the year 2035. In addition, the tonnage on Route 104 in Bridgewater, between Route 106 and Route 24, is expected to grow to over 1 million by the year 2035. Tables 3 and 4 summarize freight movement by mode in Massachusetts for 2007. The primary mode for moving freight in Massachusetts is via truck on the highway and road network, as shown in Tables 3 and 4.

Table 3 Freight Moved With Origin or Destination in Massachusetts

Mode	Tons of Freight	Percent
Truck	195,950,000	87.19%
Rail	14,630,000	6.51%
Water	13,860,000	6.17%
Air	310,000	0.14%
Total	224,750,000	

Table 4 Freight Moved Through Massachusetts

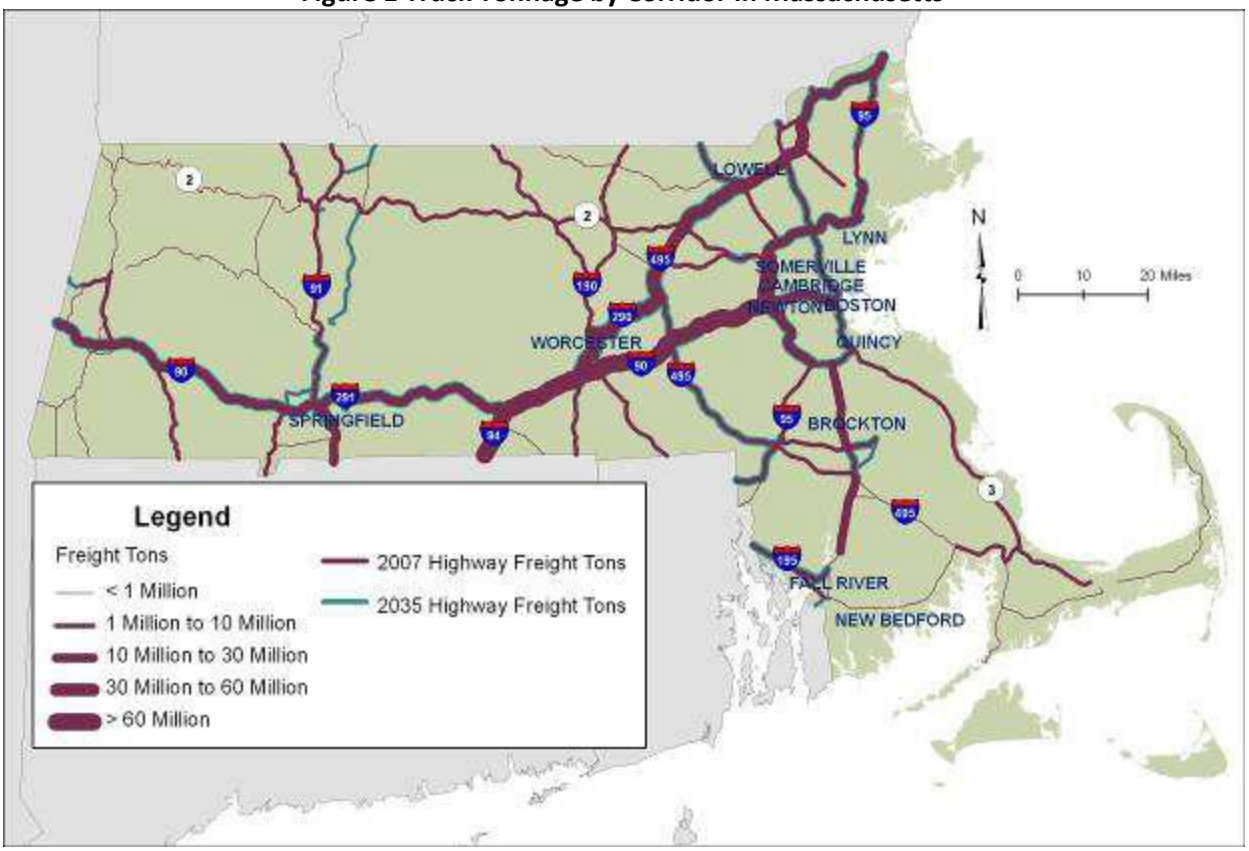
Mode	Tons of Freight	Percent
Truck only	43,213,500	81.00%
Rail only	6,935,500	13.00%
Intermodal	3,201,000	6.00%
Total	53,350,000	

4.1 Freight Analysis Framework

The Freight Analysis Framework (FAF) estimates commodity flow and freight transportation activity among states, regions, and international gateways. It includes estimates of tonnage and value of goods shipped by type of commodity and mode of transportation.[1] The Freight Analysis Framework includes a truck traffic model developed for the U.S. Department of Transportation to provide a comprehensive picture of freight movement and activity within the country's highway network. The model shows the freight flows within and between the major corridors and is intended as a baseline in support of policy studies. The FAF reports on truck tonnage and number of trucks on the highway network within and through the states. It does not detail truck traffic on a local level (or within a regional planning region such as the OCPC region). Within the FAF truck traffic model, the OCPC region is part of a larger Boston Area zone.

Figure 1 shows the freight volumes (in tonnage) on major highways in Massachusetts based on the Freight Analysis Framework (FAF) for 2007. Included in Figure 1 is the estimated freight volumes for 2035 (these future volumes do not take into account potential improvements to highway infrastructure such as improvements to height and weight restrictions).

Figure 1 Truck Tonnage by Corridor in Massachusetts[2]



[1] *Report 10, Performance Measures for Freight Transportation*, Research and Innovative Technology Administration Transportation Research Board (TRB), 2011, Page 53

[2] *Massachusetts Department of Transportation Freight Plan Executive Summary* Page ES-25

The FAF is updated every five years after each five year economic census, which includes the Commodity Flow Survey. The first version of the FAF was based on the 1997 Economic Census, included longer distance freight movements for 1998, 2010 and 2020 by all modes except pipeline, and was limited by the use of proprietary data in both publicly available geographic detail and transparency of estimation methods. The second version based on data from the 2002 Economic Census, included pipelines, removed proprietary restrictions, and was not limited to longer distance movements. The latest version, Version 3, is based on data from the 2007 Economic Census, includes estimates of domestic ton-miles. Figure 2 shows the FAF freight model zones in Massachusetts and the highway network used in the model.

Table 5 shows the tons of freight, (in thousands of tons), that were shipped from the Boston Area, (the OCPC region is included in the Boston Area), to the rest of the country by truck and rail, as well as the estimated shipments for each five year period between 2015 and 2035. Truck and rail are the two main modes of shipping utilized in the OCPC region. Table 6 shows the tons of freight that were shipped into the Boston Area from the rest of the country and the estimated shipments for each five year period between 2015 and 2035.

Table 5 Domestic Shipments from the Boston Area to the Rest of the USA

Year	Truck*	Percent Increase (Truck)	Rail*	Percent Increase (Rail)	Total	Percent Increase (Total)
2007	146,347	--	1,626	--	147,973	--
2012	144,293	-1.4%	1,471	-9.5%	145,764	-1.5%
2015	139,505	-3.3%	1,010	-31.1%	140,515	-3.6%
2020	152,767	9.5%	1,053	4.3	153,820	9.5%
2025	156,694	2.6%	1,134	7.7	157,828	2.5%
2030	156,123	-0.4%	1,261	11.3	157,384	-0.3%
2035	163,489	4.7%	1,549	22.8	165,038	4.9%

*Freight in thousands of tons

Table 6 Domestic Shipments into the Boston Area from the Rest of the USA

Year	Truck*	Percent Increase (Truck)	Rail*	Percent Increase (Rail)	Total	Percent Increase (Total)
2007	147,284	--	2,349	--	151,640	--
2012	145,546	1.2%	2,542	8.2%	150,099	-1.0%
2015	145,998	0.3%	2,438	-4.1%	150,451	0.2%
2020	162,493	11.3%	2,438	7.3%	166,950	10.0%
2025	170,451	4.9%	2,763	5.6%	175,239	4.6%
2030	174,432	2.3%	2,848	3.1%	179,309	2.3%
2035	183,420	5.2%	2,953	3.7%	188,408	4.8%

*Freight in thousands of tons

Figure 2 FAF Freight Model Zones

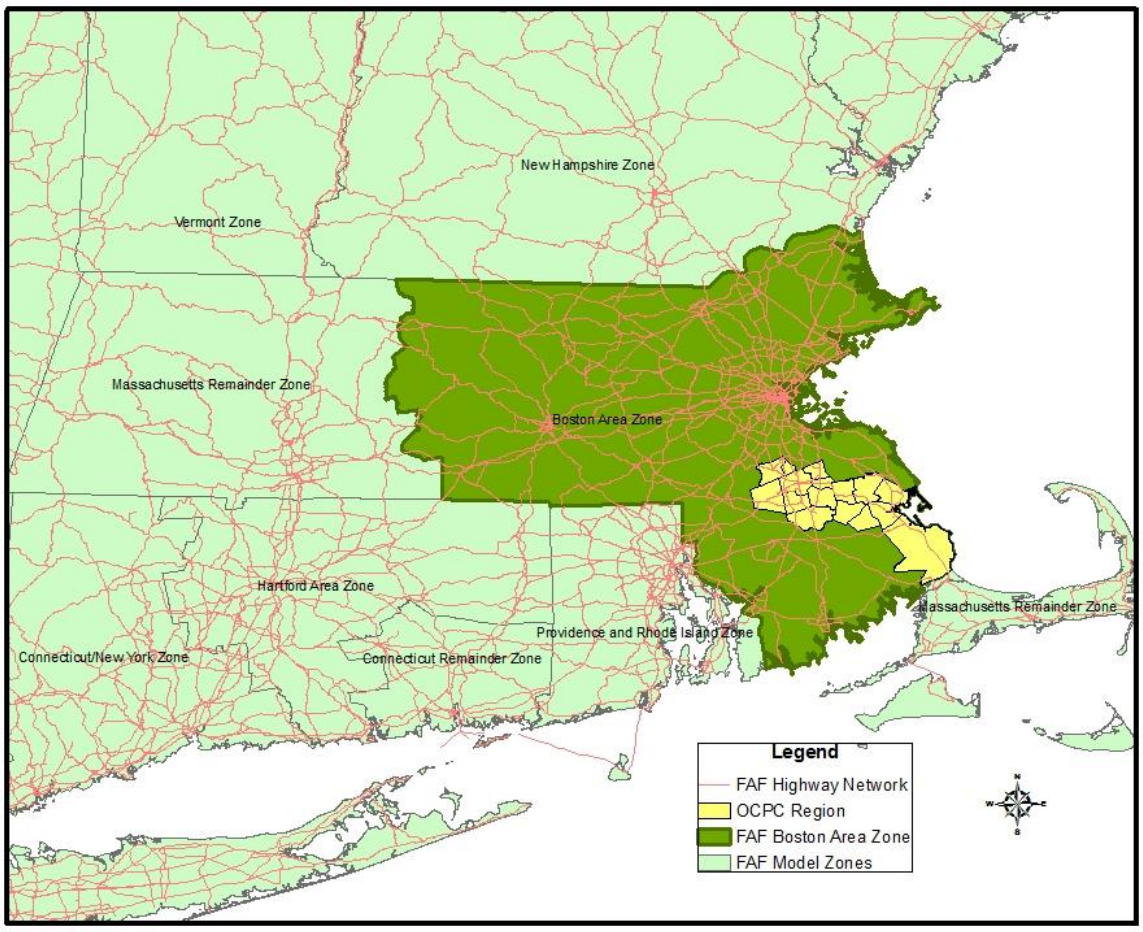
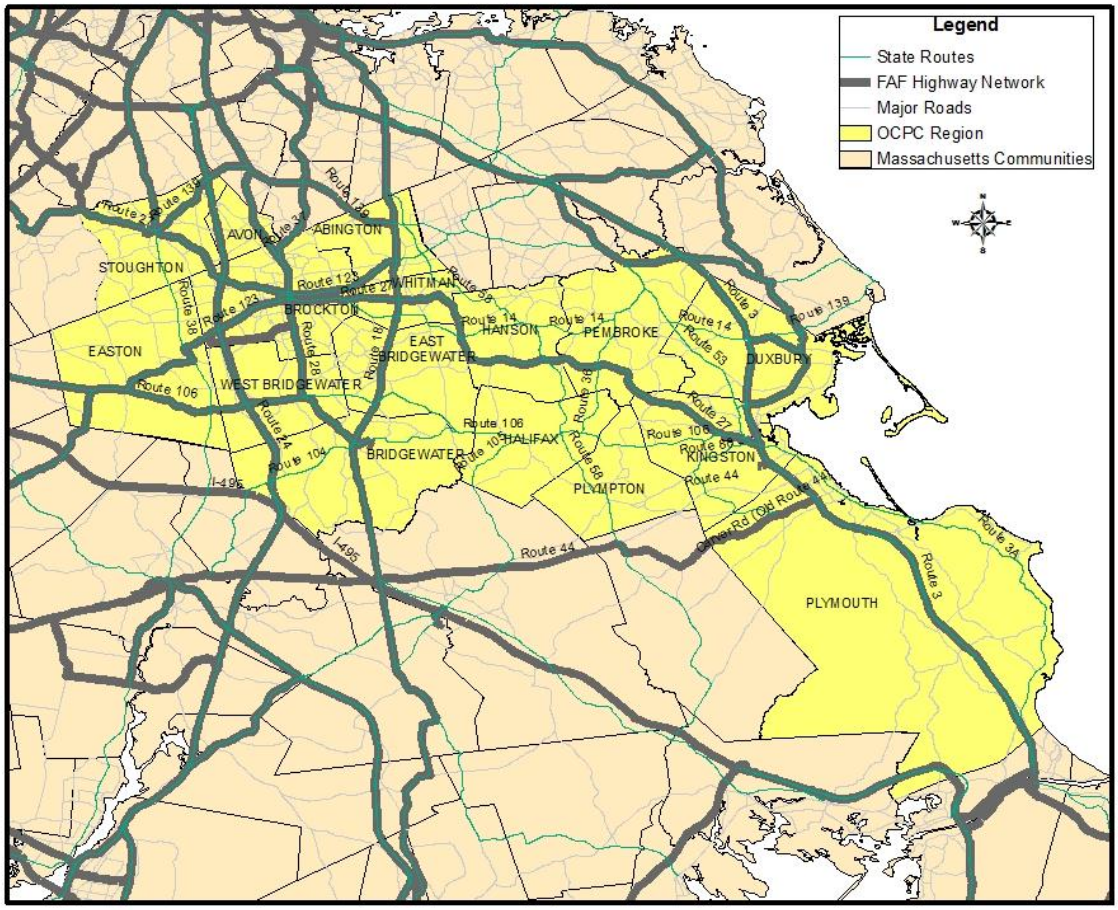


Figure 3 shows the FAF highway network within the OCPC region. As shown in Figure 3, not all state highways are included in the network including Route 58 (Abington, Hanson, Halifax, and Plympton), Route 104 (Bridgewater), Route 105 (Halifax), Route 80 (Kingston and Plymouth), Route 36 (Halifax and Pembroke), Route 14 (Whitman, Hanson, Pembroke, Duxbury), Route 53 (Duxbury), portions of Route 139 (Abington and Duxbury), portions of Route 38 (Stoughton and Easton), portions of Route 106 West Bridgewater, east Bridgewater, Halifax, Plympton, Kingston), Route 44 (Plymouth, Kingston, Plympton), and Route 3A (Plymouth and Kingston).

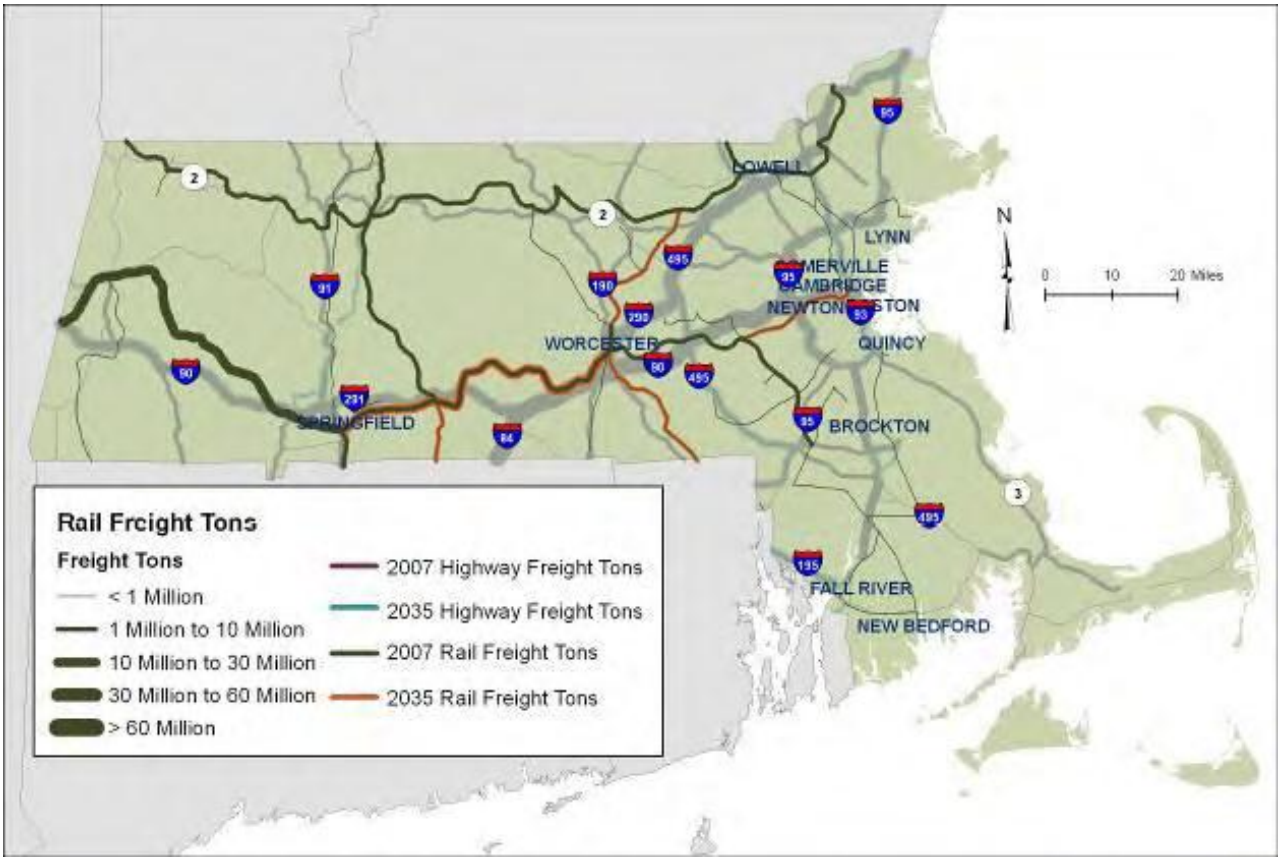
Figure 3 FAF Freight Highway Network



4.2 Rail Freight

According to the Massachusetts State Rail Plan, freight rail volumes are highest in the western half of the state, where CSX is able to run double stack trains. Rail freight volumes are significantly smaller than truck freight volumes in Massachusetts. According to the rail plan, 88.52 percent of the freight is moved by truck, 5.06 percent by rail, 0.14 percent by air, and 6.28 percent by water. According to the rail plan, there has been a decrease in freight volumes in eastern Massachusetts, which presents a challenge in serving consumer markets and businesses as inbound freight rail, especially the intermodal container traffic, transitions from rail to truck to access distribution centers, wholesale trade facilities, and retailers. Figure 4 shows rail freight in Massachusetts included in the Massachusetts Freight Plan and based on the Freight Analysis Framework. It shows growth in rail freight volumes between Springfield and Worcester, north and south of Worcester, and between Worcester and Boston. Rail Freight in the Brockton rail corridor is not expected to increase substantially, according to the Massachusetts Freight Plan, based on the Freight Analysis Framework.

Figure 4 Rail Freight in Massachusetts[3]



4.3 Brockton CSX Rail Site

In September of 2013, a study, *Preliminary Market Assessment for the Brockton CSX Site*, was completed by a consultant for the Metro South Chamber of Commerce. The Brockton CSX site is known as the former Brockton Freight Yard, and is located north of the Brockton downtown adjacent to North Montello Street. The site has a long frontage on the active rail line but lacks direct connection to the local roadway system. The site is bordered by Elliot Street on the north and Court Street (Route 27) to the south. It is 31 acres in area and has not been in use as a rail yard since the 1980's. The assessment focused on discerning the site's physical, environmental, and infrastructure strengths and weaknesses, gaining the input of stakeholders, gathering information on potential customers, and discussing potential redevelopment opportunities. The goal of the study was to outline specific steps toward developing a strategic plan for site redevelopment. Figure 5 shows the location of the site in Brockton.

The assessment study concluded that "The size, shape and number of staging rail lines limit the use of the site such that it will never become a major intermodal (truck-train) logistics hub." The study stated that CSX relocated its rail activities to Worcester (for intermodal containers) and Westborough (for bulk/carload shipments) as a result of consultation and agreement with the Massachusetts Department of Transportation (MassDOT). The study stated that it is possible that intermodal containers could be handled in Brockton on a smaller scale, although the expanded Worcester facility (which now has

[3] *Massachusetts Department of Transportation Freight Plan Executive Summary Page ES-25, based on the Freight Analysis Framework.*

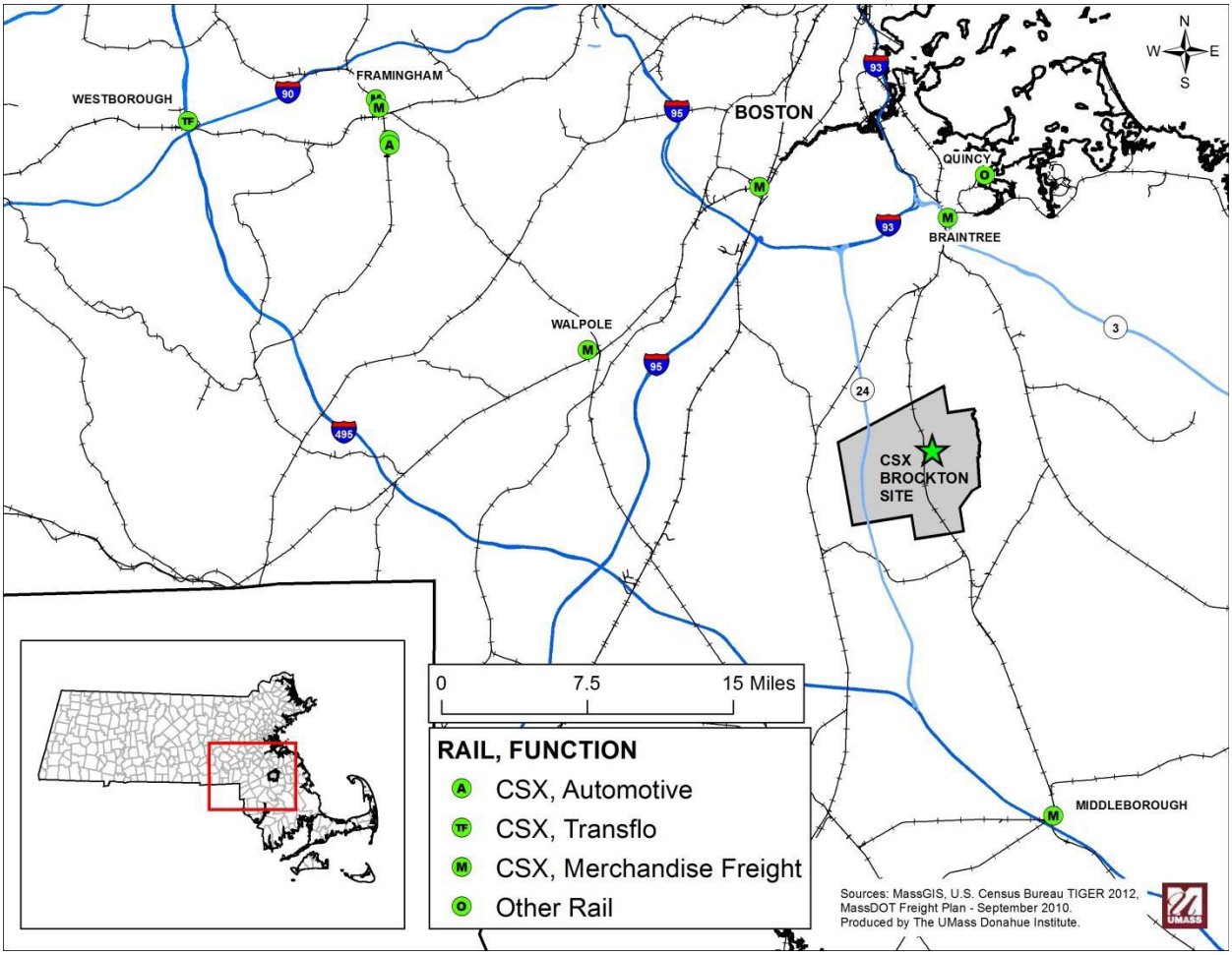
double-stack capacity to/from New York) will be the focal point for containers, with trucks "draying" containers to ultimate destinations. According to the study, most rail corridors and bridges south of the CSX site can only handle loads to about 263,000 pounds, which is below the updated contemporary needs of 286,000 pounds. In addition, trains on the lines south of the site also face limitations die to competition for the track with passenger rail trains. Despite this, CSX does serve customers in and around Brockton. According to the study, CSX runs one train per day (five days per week) on the Brockton corridor (typically 12-14 rail cars). CSX typically runs its freight trains at off-peak hours to avoid conflict with the passenger service.

According to the assessment study, the CSX site has two issues regarding inter-modal connection to the local highway network. The stone arch bridges in downtown that provide access to the site have height restrictions of 13 feet and 6 inches (Court Street Route 27). This height is available only at the apex of the arch and the height of the arches is only approximately 11 feet high at curbside. The height restriction often causes trucks to have to be in the middle of the road to clear the bridges, which results in trucks crossing the double yellow center line and encroaching on the lane with traffic headed in the opposite direction. Trucks must travel beneath the stone arches on Elliot Street and Court Street for access to Montello Street (Route 28) or other routes such as Route 27 to the west (to connect to Route 24). The other issue is that the site is not convenient to the interstate system. The closest limited access highway is Route 24, although Route 24 does connect to I-495, I-93, and Boston.

The study concluded that based on the current market and past uses at the site, the most likely types of freight rail uses there would include:

- Secondary freight rail yard for bulk commodities that are not time sensitive
- Warehousing/distribution center (rail access is often a benefit for these facilities)
- Manufacturing company that requires rail shipments, such as a food producer that requires bulk products (this is increasingly rare in MA as most manufacturing companies no longer use rail for inbound or outbound shipments)
- Commodity-specific transfer facility from rail to truck for local company (e.g., to handle flour, corn syrup, rock salt, or other bulk commodities)

Figure 5 Brockton CSX Site Location[4]



5 Previous Studies

5.1 Massachusetts Freight Plan 2010

In 2010, the Massachusetts Department of Transportation (MassDOT), developed a statewide freight plan. According to the MassDOT, the purpose of the plan was to "...produce a comprehensive evaluation of the Commonwealth's freight transportation system, its operations, and its effect on economic development and quality of life." The plan evaluated public and private sector benefits of freight system improvements, identified investment priorities, and identified potential changes for regulations. The plan considered regional and national trends, intermodal and multi-modal issues, and potential partnership opportunities between local, regional, and private sector stakeholders. The study included an evaluation of existing conditions and future trends, the identification of key issues and opportunities, and the analysis and prioritization of investment strategies utilizing stakeholder and public involvement. The plan included a public outreach element to inform the public and key regional

[4] *Preliminary Market Assessment for Brockton CSX Rail Site, UMass Donahue Institute Economic and Public Policy Research, Page 6*

freight stakeholders about the content of the plan and to receive input from the public about its needs and concerns.

The 2010 statewide freight plan included the following mission statement; "To deliver excellent customer service to the people who travel in the Commonwealth and to provide our nation's safest and most reliable transportation system in a way that strengthens our economy and quality of life."

The 2010 statewide freight plan established a number of goals in the following areas, including:

- **Safety –** Manage the nation's safest transportation system
- **State of Good Repair –** Build a quality transportation system and maintain it in a state
- of good repair
- **Stewardship –** Operate the transportation system in a manner that embraces our
- stewardship of the Commonwealth's natural, cultural, and historic resources
- **Customer Service –** Deliver superb service that both anticipates and responds to
- customer needs
- **Efficiency –** Invest public funds and other resources wisely while fostering economic
- development wherever and whenever possible

The 2010 statewide freight plan also stated that freight operations are an important consideration in the promotion of a sustainable transportation system as in keeping with MassDOT's GreenDOT policy Directive. This directive is a comprehensive sustainability initiative promoting sustainability through planning, construction and system operations[5]. The three GreenDOT goals include

1) To reduce greenhouse gas (GHG) emissions;
2) To promote the healthy transportation modes of walking, bicycling, and public transit;
3) To support smart growth development.

The 2010 statewide freight plan includes existing conditions describing the existing infrastructure conditions and constraints of the Massachusetts freight system as well as the regional, national, and international context for the movement of goods. It includes the key regional freight flows and connections involving long-distance and multi-state shipments. It also includes infrastructure and operational assessments based on mode for the Massachusetts freight system infrastructure (highway, rail, seaports, and air). The future conditions section of the study focuses on economic and trade trends, issues, and opportunities including recent trends that the role freight plays in the state's economy. Specific elements of the future conditions include economic, industry and land use development trends, measures on economic and demographic growth, freight transportation contributions to the Massachusetts economy, and industrial land use and freight facility data. MassDOT developed a number of potential multi-modal freight investment strategies and evaluations of those potential strategies.

5.2 2002 OCPC Heavy Vehicle Route Identification Study

In 2002, OCPC completed the *OCPC Heavy Route Identification Study*. The purpose of the study was to discern truck freight movement patterns within the OCPC highway and road network and to identify deficiencies in the system. The study purpose also included documenting impacts to residential areas and to discern traffic flow issues. The study resulted in recommendations for improvements in safety

[5] *Massachusetts Department of Transportation Freight Plan Executive Summary,* Page E-3

and traffic efficiency regarding the movement of goods through the region. The study included a compilation of traffic and crash data and an analysis of heavy commercial vehicle exclusions on the road network, as well as a survey of the trucking industry to discern the needs of the industry and to assist in the planning of infrastructure improvement and safety projects in the region. The study documented high crash intersection locations, pavement conditions of federal aid roads (Excellent, Good, Fair, Poor), the status of bridge conditions in the region, truck exclusion routes in the region, and included the percentage of truck traffic on the region's state numbered routes. The study also included a summary of future infrastructure improvements.

The *OCPC Heavy Route Identification Study* included a survey of truck companies of long distance and regional truck freight carriers. The survey indicated that the top trucking routes included the use of I-495, Route 24, Route 18, Route 28, and Route 106. The survey indicated that the trucking industry in the region served mostly the New England area.

The 2002 survey included the following questions:

1. Number of trucks (straight trucks or tractors, light, medium, or heavy).
2. Type of trucking (for hire or private).
3. Number of employees.
4. Number of drivers.
5. What commodities are transported.

5.3 Comprehensive Economic Development Strategy 2013

The Old Colony Planning Council has established an Economic Development District that encompasses the sixteen communities that make up the OCPC region. In order for the OCPC region to participate in funding opportunities offered by the federal Economic Development Administration, OCPC implemented a formal Comprehensive Economic Development Strategy (CEDS) Program. The intention of CEDS Program is to create an economic development guideline for the OCPC Economic District. That program is outlined in the annual OCPC Comprehensive Economic Strategy (CEDS) report. The findings and recommendations from the report can help to support the effort to discern the potential future direction and needs of freight movement with the region. Findings from the 2013 Comprehensive Economic Development Strategy report include the following:

1. The current recession has hit the OCPC area hard. The City of Brockton continues to have the highest yearly average unemployment rates in the region. Agriculture dependent communities such as Plympton have suffered job losses due to the decline of the cranberry industry. The City of Brockton has the highest home foreclosure rates in Massachusetts.

2. The economy in the district has shifted. In recent years wholesale and retail trade and the service sector have grown dramatically in terms of regional employment while the manufacturing and agricultural sectors continue to decline.

3. OCPC's role must focus on building and strengthening regional partnerships among all parties involved in economic development. Links between education and training, financing, site development and promotion and quality of life issues deserve equal consideration.

4. Education and job training are among the most important needs. Job training to meet the needs of present and future employers must be an essential part of the regional economic development strategy.

5. Small businesses remain the foundation of the regional economy. Over two-thirds of the businesses in the District have ten employees or less. The regional economic development strategy must recognize the needs of those businesses and seek to meet them.

6. Transportation planning is significant to the economy of the region, and good planning is essential. Highway, rail and airport improvements will ease the mobility of people and goods and further regional economic growth.

7. Infrastructure improvements are crucial to the region. Wastewater, sewer, waste disposal, transportation and telecommunication-technology related improvements are vital to the present and future economic health of the region.

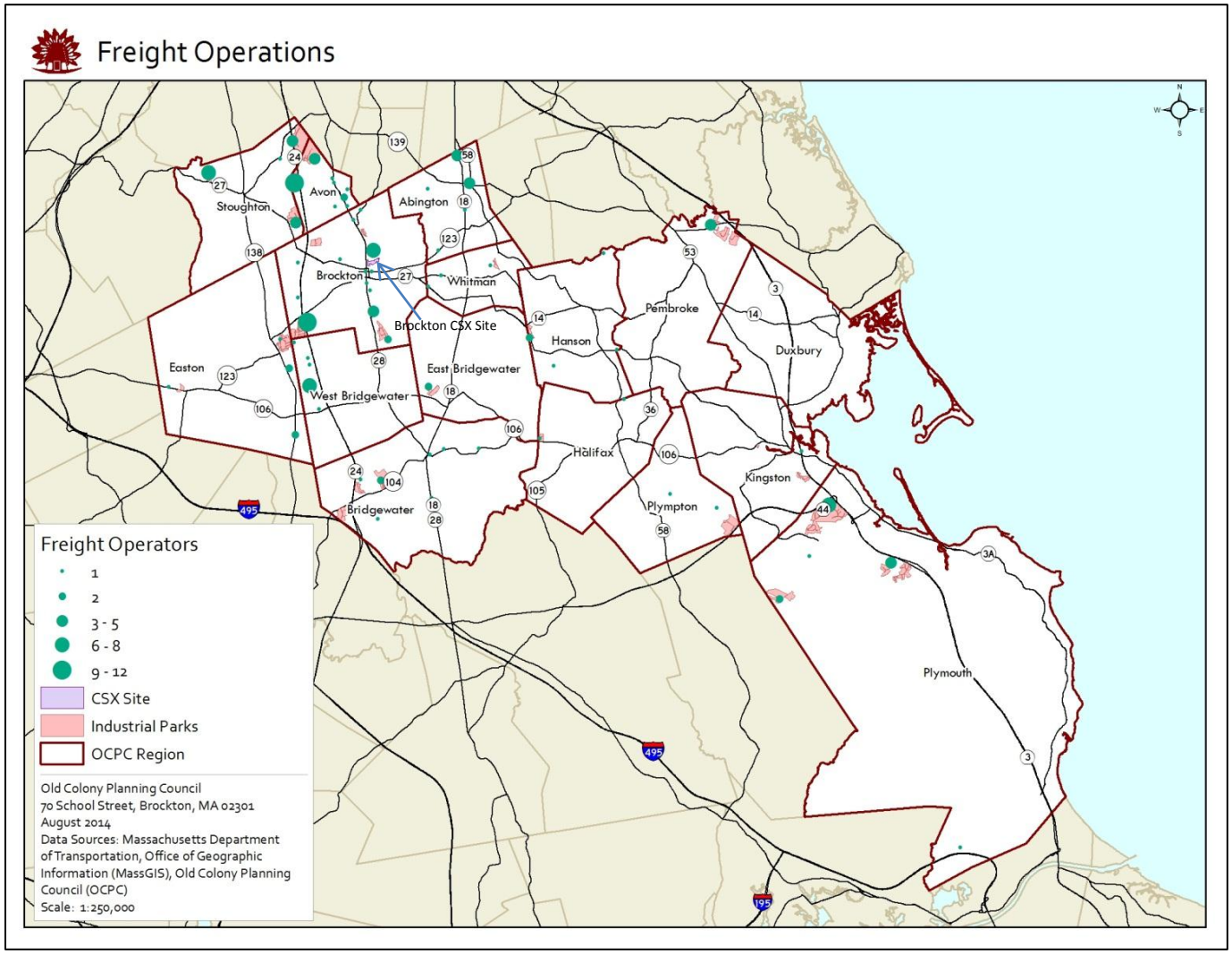
These findings show that an efficient road network, as well as efficiency in the completion of road projects, are essential to the economic integrity of the region as small businesses rely heavily on the local road network and the local economy has shifted to wholesale, retail, and service industries.

6 OCPC Region Freight Operations

OCPC compiled a list of freight providers and their locations within the OCPC region based on a number of sources including commercial business listings, public directory listings, and industrial park listings. The business listings were supplemented with information on industrial parks and known providers contained in the Comprehensive Economic Development Strategy (CEDS) Report. A list of freight providers is included in the appendix to this report. Figure 6 shows the locations of the freight operators in the OCPC region as well as industrial parks. In addition, Figure 6 shows the location of the CSX site on Montello Street (Route 28) in Brockton. The CSX site on Montello Street is the former Brockton freight yard, (currently abandoned), that acted as a secondary freight rail facility once serving regional markets in southeastern Massachusetts.

Figure 6 shows that much of the freight operations in the region are clustered along the Route 24 corridor, along with industrial parks, in Avon, Stoughton, Brockton, West Bridgewater, and Bridgewater. The Route 3 corridor is also an important freight corridor in the region with clusters of providers and industrial parks in Kingston and Plymouth. The state numbered routes in the region that are key to freight movement include Route 28 in Brockton and Avon, Route 123 in Brockton, Route 27 in Stoughton, Brockton, and Whitman, Route 123, Route 138, and Route 106 in Easton, Route 106 in West Bridgewater and East Bridgewater, Route 104 in Bridgewater, Interstate 495 in Bridgewater, Route 18 and Route 58 in Abington, Route 139 in Pembroke, and Route 44 in Kinston and Plymouth.

Figure 6 Freight Operation Locations in the OCPC Region



6.1 Traffic on the Regional Highway Network

OCPC maintains extensive archives of traffic volume counts on the Old Colony Region's road and highway network that go back to 1979. These traffic counts were taken by OCPC; however, some were compiled from other sources such as MassDOT. The Old Colony Traffic Volumes Report list the locations and traffic counts and also include includes calculations of average growth factors (Section VI, Traffic Growth Rate) for the region's state numbered routes. The general trend for traffic growth has been that traffic volumes have remained static or increased slowly over the short term (the past five to ten years). Some of the state routes have actually decreased in volume over the short-term; however, the Old Colony Traffic Volumes Report estimates an average background growth in traffic of 0.25 percent per year for the region as a whole. This is a general trend that has occurring over a five year period, and regional traffic growth can vary considerably from route to route, especially in areas that have experienced growth in retail and commercial development, which have seen spikes in traffic. The trend for growth over a longer period (15 years) based on counts compiled in the OCPC Traffic Volumes Report has been at 0.84 percent per year.

Traffic growth within a highway corridor can be attributed to the influences of land development along the highway or in close proximity. Fluctuations and changes in the overall economy also influence job growth and retail and commercial activity. Volatility in the price of gasoline can also bring about a decrease in auto use and number of trips, and cause a switch to transit use. Figure 7 illustrates the traffic volumes on regional highway network.

Figure 7 Average Annual daily Traffic in the OCPC Region

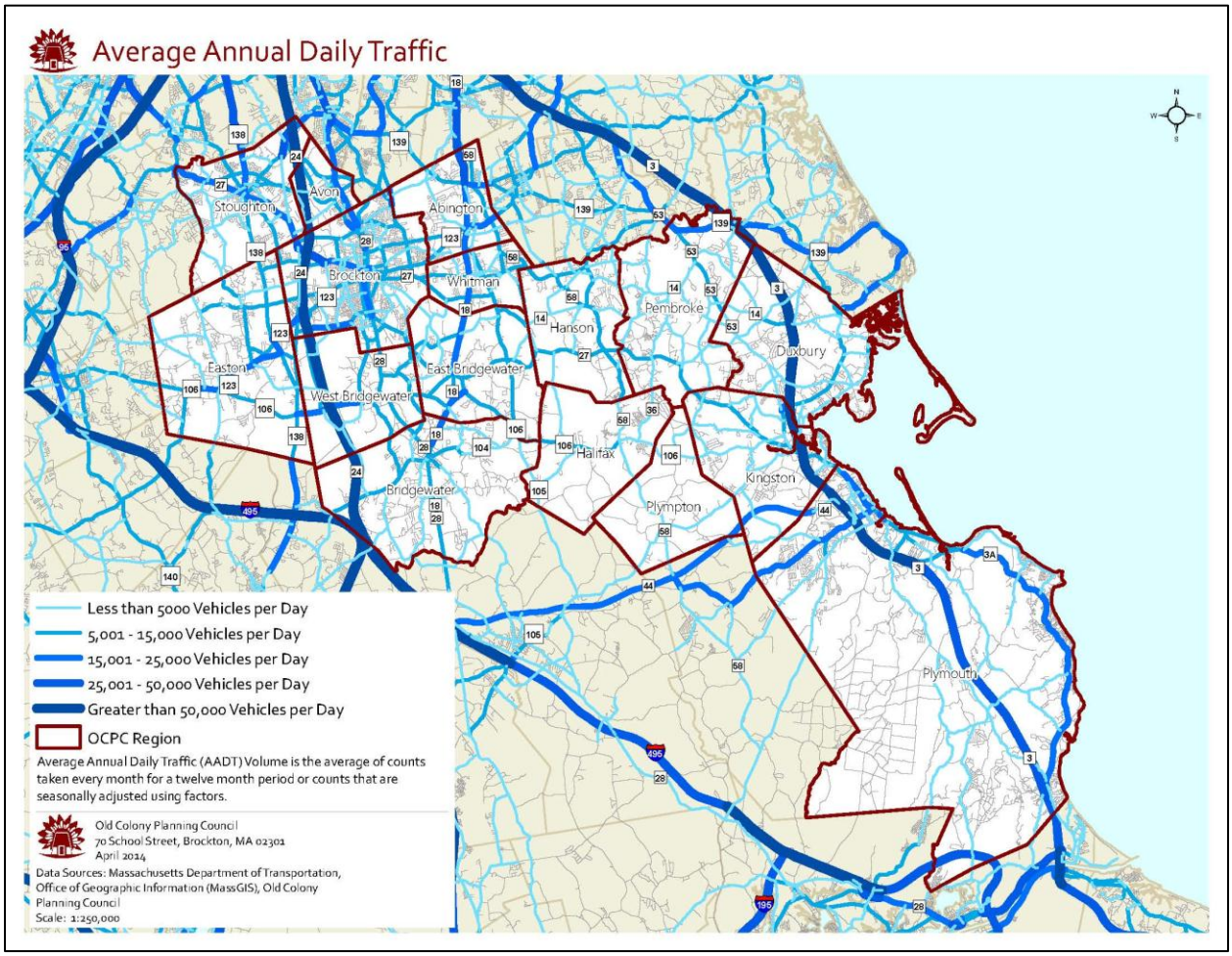


Figure 7 shows that the highway corridors with the highest traffic volumes are also those key highway corridors where freight operators are located in the region, when Figure 7 is compared to Figure 6 (Freight Operation Locations in the OCPC Region). Figure 7 shows that the highest daily vehicle volumes in the region occur on Route 24 (through Brockton, Avon, and West Bridgewater, and Route 3 (Plymouth, Kingston, Duxbury, and Pembroke), both of these routes are key truck freight corridors, and both of these routes have the highest daily volumes (greater than 50,000 vehicles per day). Figure 7 shows that Route 27 in Brockton, Route 139 in Stoughton (in the vicinity of Route 24), Route 28 in Brockton, Route 106 in West Bridgewater, and Route 18 in Abington all have heavy daily vehicle volumes (25,000 to 50,000 vehicles per day). These highways are also key truck freight corridors. Figure 6 (Freight Operation Locations in the OCPC Region) shows that these highways have clusters of freight and trucking providers located within their corridors. Other state numbered routes in the region that are key to freight movement that have 15,000 to 25,000 vehicles per day include Route 28 in Route 27 and Route 138 in Stoughton, Route 123 and Route 106 in Easton, Route 123 in Brockton, Route 18 in

Bridgewater, East Bridgewater, and Whitman, Route 25 (I-495) in Plymouth, Route 44, Samoset Street (Old Route 44), in Kingston and Samoset, Route 3A in Plymouth, and Route 139 in Pembroke.

6.2 Congestion in the OCPC Region

Federal regulations define congestion on a transportation facility as a level of performance that is deemed unacceptable due to traffic interference. The acceptable level of performance varies from state to state and depends upon the performance measures utilized to quantify congestion. Congestion can be described in terms of capacity. The capacity of a facility refers to the ability of a facility to process traffic during times of peak demand. Congestion occurs when the facility's capacity is insufficient to meet the traffic demand. This can be due to chronic surges in traffic during peak hour times (morning and afternoon) or traffic incidents such as crashes and vehicle breakdowns; work zones; inclement weather; special events; and poorly timed traffic signals. A bottleneck is a condition that restricts the free movement of traffic creating a point of congestion during specific periods, usually the peak commuter periods. These can occur at intersections, town centers, merges and weaves to and from highways, or on sections of highways that have lane drops. Bottlenecks have a number of different causes including operational influences (traffic signals and the physical design and alignment of intersections); the narrowing of a highway corridor and lane drops, weaving conditions, sun glare, steep grades, or crashes and incidents on a roadway. The FHWA defines bottlenecks as "Localized sections of highway where traffic experiences reduced speeds and delays due to recurring operational conditions or non-recurring traffic influencing events."

The cost of congestion can be measured in dollars as well as time. There is a direct link between transportation investment, travel conditions (congestion and reliability), and economic productivity. Two key trends have a substantial impact on the total cost of moving freight:

1. As congestion spreads into the midday, which is typically the peak travel period for trucks, more direct costs will be incurred; and
2. Reliability – For trucks, the ability to hit delivery windows predictably will decrease and will add even more costs as firms struggle to optimize delivery schedules. This is especially a problem for truckers who must meet "just-in-time" delivery schedules set by shippers, manufacturers, and retailers.

The volume to capacity ratio, which is based on the relationship between a facility's theoretical capacities to the actual volumes utilizing the system, is an important performance measure utilized in the congestion management process. The capacity of a road or facility can be thought of as its ability to process traffic, measured in both the physical space available and in time, or the speed in which vehicles can travel (how quickly, measured in time, the vehicle traverses the facility). Traffic volumes are the primary indicator of the demand for roadway travel. Congestion can be measured by comparing traffic volumes to roadway capacity. The higher the volume to capacity (V/C) ratio, the more congestion exists (in actual traffic operations, V/C ratios do not exceed 100%, but higher values generally indicate that congestion spreads beyond the typical rush hours into other parts of the day). A V/C ratio of 0.80 or above is used as an industry standard as a threshold for screening congested facilities.

The MassDOT regional travel demand model has identified congested corridors and intersections based on a V/C greater than or equal to 0.80. These areas within the OCPC region can be observed directly as congested and are shown in Figure 8.

Figure 8 Congestion in the OCPC Region

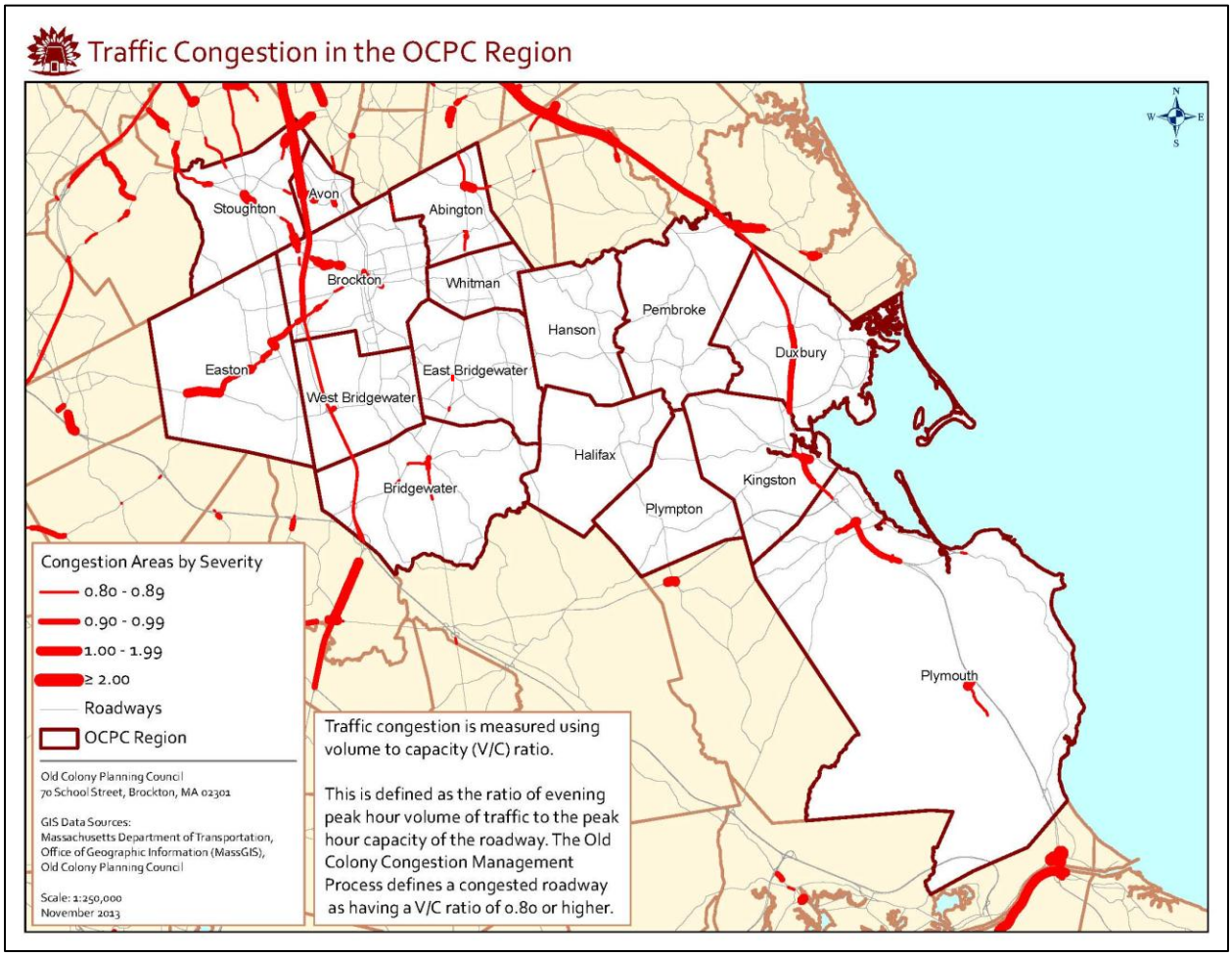


Figure 8 can be compared to Figure 6 (Freight Operation Locations in the OCPC Region), which shows that the key highway corridors where freight operations are located on the OCPC regional network are also among the most congested areas on the region's highway network. These include the Route 24 and Route 3 highway corridors; Route 3A in Kingston; Samoset Street in Plymouth; Route 27 in Stoughton and Brockton; Route 138 in Stoughton Center; Route 139 in Stoughton; Route 123 in Easton and Brockton; Route 106 in Easton and West Bridgewater; Route 104 in Bridgewater and Bridgewater Center; Route 18 in Bridgewater, East Bridgewater (East Bridgewater Center), and Abington; Route 139 in Abington; Route 28 in Avon and Brockton; and Harrison Boulevard in Stoughton and Avon.

6.3 Pavement Conditions

OCPC maintains a region-wide pavement management system (PMS) for federal-aid eligible roads in conformance with federal guidelines. The system is refined and updated on a continuous basis in keeping with the management system process principles of objectives-driven, performance-based planning. The PMS was developed in cooperation with the Massachusetts Department of Transportation (MassDOT) and other Massachusetts regional planning agencies. OCPC collects data for all federal aid eligible roads and updates the data every four years consistent with the Regional Transportation Plan (RTP) cycle. The federal aid road mileage in the system recently increased from 590 miles to 642 miles

as the system was updated to include the Town of Duxbury, which was recently added as an OCPC member community. The data is collected utilizing windshield surveys of the road surface. The field survey evaluations are based on the severity and extent of specific surface condition criteria including: potholes and patching, alligator cracking, distortion, rutting, weathering/block cracking, transverse and longitudinal cracking, bleeding/polished aggregate, surface wear and raveling, corrugations, shoving, and slippage. The information on road surface conditions obtained in the windshield survey is entered into the pavement management software, which assigns a Pavement Condition Index score (PCI) and recommends a repair and associated cost for each road and road segment.

The PMS software utilized by OCPC includes a pavement deterioration curve that demonstrates the rate of deterioration of pavement and the implications for cost of maintenance. The software calculates Pavement Condition Index (PCI) scores for the surveyed road segments. The PCI assigned to each road or road segment is based on the condition surveys conducted in the field by OCPC staff. Each road or road segment is placed in a condition category based on the PCI, which includes "Poor" (PCI = 0 to 64), "Fair" (PCI = 65 to 84), "Good" (PCI = 85 to 94), and "Excellent (PCI = 95 to 100). The resultant PMS reports indicate recommendations and cost estimates for maintaining the network. Figures 9 and 10 show the pavement conditions in the region on federal-aid highways and roads.

Figure 9 Pavement Conditions in the OCPC Region

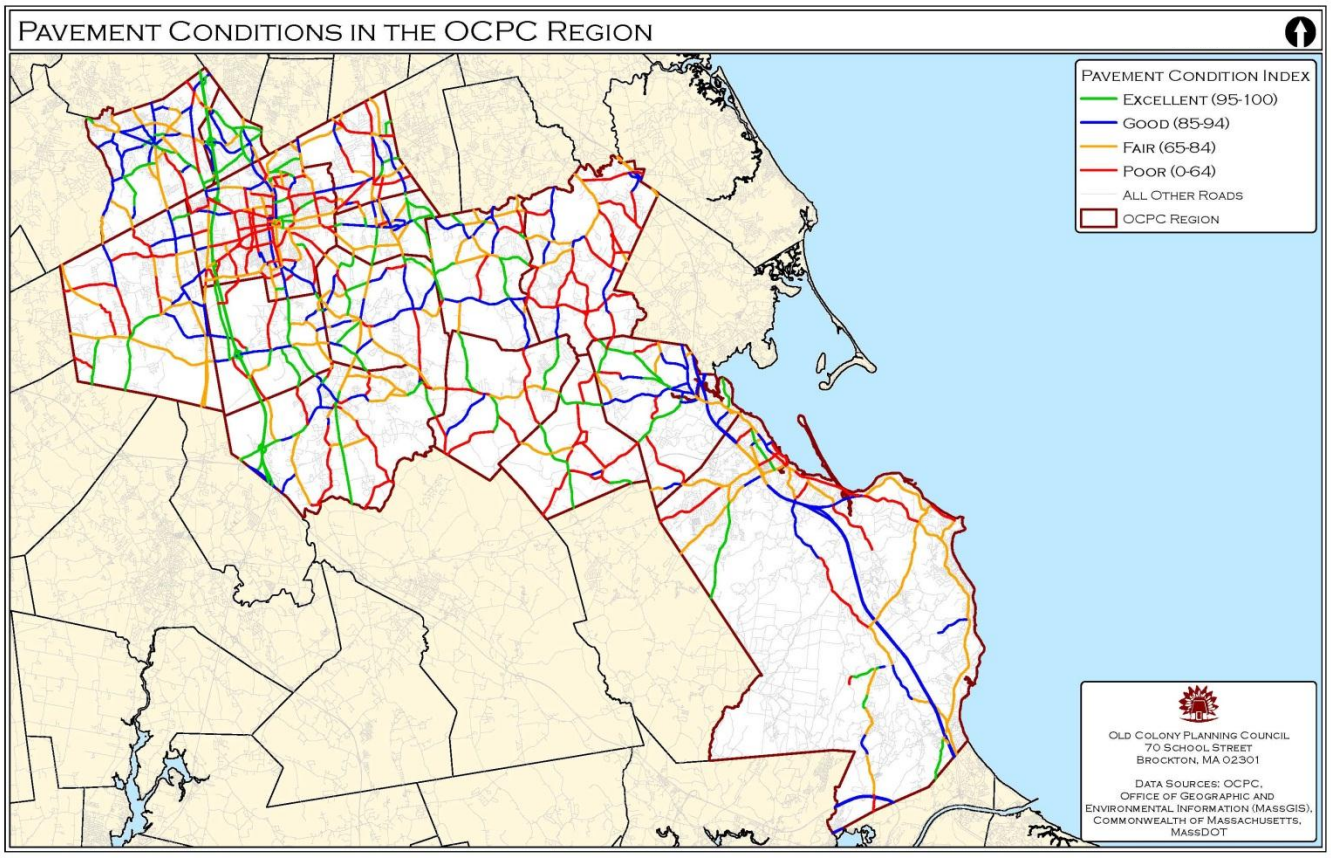
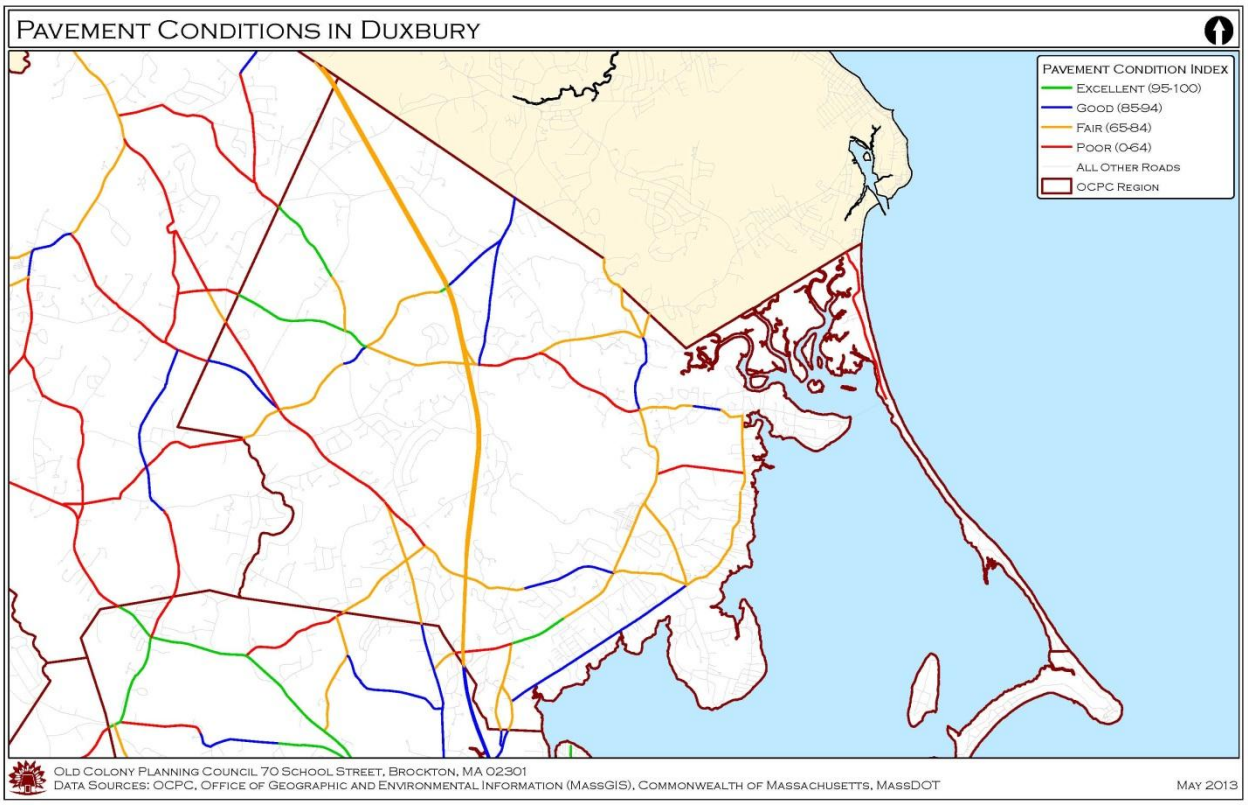


Figure 10 Pavement Conditions in the Town of Duxbury



Figures 9 and 10 show that the Route 3 corridor in Plymouth and Kingston is in mostly "Good" condition, with a section in Plymouth near Route 44 in "Fair" condition. Route 3 in Duxbury is in "Fair" condition. The Route 24 corridor in Bridgewater, West Bridgewater, Brockton, Avon, and Stoughton is in "Excellent" condition. Route 28 in Bridgewater, West Bridgewater, Brockton, and Avon, which is also key to truck movement, is in mostly "Good" to "Excellent" condition. The Route 106 corridor is in "Fair" condition in Easton. The Town of Easton has included the resurfacing of Route 106 in its pavement improvement program over the next three years. Route 106 is also in "Fair" and "Poor" condition in Halifax. Route 58 in Halifax is also in "Poor" condition. Route 139 in Stoughton is in "Fair" and "Good" condition with a section in "Poor" condition. Route 138 in Stoughton and Easton is in "Fair" and "Good" condition. Route 123 is in "Good" condition in Easton, but in "Poor" condition in Brockton. Route 27 is in "Good" condition in Stoughton, but "poor" and "Fair" condition in Brockton.

6.4 Constraints and Challenges to Freight Movement

The previous section (6.2 Congestion in the OCPC Region) illustrated the operational constraints showing the areas in the region's highway and road network where chronic congested occurs, which is at bottlenecks as well as on specific highway segments. The comparison of Figure 8, congested areas, with Figure 5, which shows the freight operation locations in the OCPC Region, illustrates that most of the freight operators in the region are located within these congested corridors and regularly utilize the part of the network that contains most of the congestion and major bottlenecks. This congestion presents the freight operators with chronic congestion constraints, which impacts delivery times for customers.

In addition to operational constraints, physical constraints and impediments to trucks within the roadway network within the OCPC region are numerous. There are a number of these physical

constraints that stand out as they slow down traffic, create bottlenecks, and raise safety concerns. These locations are summarized in Table 6.

Table 6 Truck Constraints in the OCPC region

Community	Location	Physical Constraint	Project
Abington	Route 18	Peak Hour Congestion	
Avon	Harrison Boulevard/Pond Street intersection	Congestion and queuing on Pond Street to Harrison, back-ups to Bodwell. Weaving and lane changes on Harrison Boulevard from Route 24 ramps to Pond Street. Vehicles turning left on this approach back-up on Harrison Boulevard impeding through traffic and creating hazardous conditions.	MassDOT Project Number 608086
Avon	Route 28/East Spring Street/West Spring Street intersection	Turning radii constraints for trucks turning in and out of east Spring Street to and from Route 28.	Road Safety Audit Completed Pre-PRC*
Bridgewater	Bridgewater Center	Turning radii limited for trucks turning into Bridgewater Center from Plymouth Street and from North Main Street. In addition, the angled parking limits sight visibility of pedestrians in the Town Center.	Pre-PRC
Bridgewater	Pleasant Street (Route 104) at Scotland Boulevard	Limited turning radii for trucks entering and exiting Scotland Boulevard to and from Pleasant Street (Route 104) resulting in trucks hitting utility poles at the side of the road.	
Brockton	-Elliot Street -Route 27 Court Street -Route 123 Centre Street -School Street -Crescent Street	Limited height distances for trucks beneath the railroad viaduct in Brockton downtown.	
Brockton	-Route 27 Court Street at Route 28 Montello Street -Route 123 Centre Street at Route 28 Court Street -Main Street at Pleasant Street and Court Street -Route 123 Belmont Street at Main Street	Limited turning radii along at various locations in Brockton downtown.	
Kingston			
Stoughton	-Central Street at Tosca Drive and Canton Street (Route 27)	Limited turning radii for trucks in and out of Tosca Drive. The Intersection is skewed and misaligned.	
Stoughton	Island Street at Central Street (route 27)	Limited turning radii for trucks in and out of Island Street.	
Whitman	Route 18 at Route 14	Right turn radii constricted resulting in trucks hitting utility poles at the side of the road.	

*Pre-PRC = Not yet accepted by the MAssDOT Project Review Committee

Table 6 includes key truck routes in Brockton Downtown that pass under the railroad viaduct. This rail line carries MBTA passenger rail as well as CSX freight. The roads beneath the rail include Elliot Street, Court Street (Route 27), Centre Street (Route 123), School Street, and Crescent Street (Route 27). The viaducts were built in the late 1800s and over the years, as trucks became larger, the height of the viaducts became an issue for moving freight beneath the rail line. The viaduct bridges in Brockton are all included in MassDOT's Historic Stone Arch Bridges List (as well as the Lincoln Street/Railroad Street pedestrian underpass). MassDOT has two criteria for inclusion on the list: 1. The bridge must be listed in MassDOT's computerized statewide bridge database and, therefore, must possess a MassDOT's Bridge Department Number (BDEPT), and 2. MassDOT must possess evidence that the bridge has been

individually listed in, or has been found eligible for individual listing in, the National Register of Historic Places.

The height of the viaducts (at their highest point) is different at each location. The viaduct over Elliot Street is 13 feet 6 inches at its highest point over the road and 11 feet at the edge of the road; the Centre Street (Route 123) viaduct is 14.0 feet high at the center and 11 feet 6 inches at the edge of the road; the viaduct on Court Street is 13 feet 6 inches high at the center of the street; the School Street viaduct is 12 feet 6 inches high at the center of the road and 10 feet at the edge of the road; and the Crescent Street viaduct is 15 feet 6 inches high from the center of the road and 12 feet at the edge of the road. These heights are insufficient for many of today's heavy vehicles. These low height restrictions hinder east to west truck traffic in Brockton.

In addition to the low railroad viaduct, truck traffic turning between these major east west routes in Downtown Brockton to north south routes such as Main Street or Montello Street are hindered by tight turning radii. Trucks often encroach on other lanes or end up on sidewalks making these turns at intersections along Montello Street (Route 28) and Main Street in Brockton Downtown.

Height limitations on Centre Street (Route 27) Brockton – 14.0 feet at the center, 11 feet 6 inches at the edge of the road

A tractor-trailer truck exiting Tosca Drive headed west on Central Street (Route 27) encroaches on the Central Street (Route 27) eastbound travel lane

Roads in the region that are not truck routes are largely roads in residential areas or other roads excluded to trucks. Table 7 lists the truck route restrictions in the Region, based on MassDOT data. The impact of trucks on neighborhoods is an important issue regarding the movement of goods in the region. OCPC receives numerous requests from communities to assist in the development of heavy commercial vehicle exclusion reports (HVCE), in order to help minimize the residential impacts while maintaining the efficiency of goods movement. MassDOT maintains sole jurisdiction over the granting of these exclusions, and grants the exclusions based upon specific criteria. Freight movement via truck through neighborhoods remains an issue with the growth of both residential and commercial development within the region.

Table 7 Truck Restrictions in the Region

Community	Truck Restriction Street	Exemption From	Exemption To	Exemption Type	Time Restrictions
Abington	Temple Street	Randolph Street (Route 139)	Bates Street	All vehicles over 2 1/2 tons.	24 Hours, 7 Days
Abington	Thicket Street	Old Randolph Road	Weymouth Town Line	All vehicles over 2 1/2 tons	24 Hours, 7 Days
Abington	Vernon Street	Washington Street	Brockton Avenue	All vehicles over 2 1/2 tons	24 Hours, 7 Days
Bridgewater	Roberts Road	Pond Street (Route 104)	East Bridgewater Town Line	All vehicles over 2 1/2 tons	24 Hours, 7 Days
East Bridgewater	Old Plymouth Street	Plymouth Street (Route 106)	Bridgewater Town Line	All vehicles over 2 1/2 tons	24 Hours, 7 Days
Pembroke	Brick Kiln Lane	Washington Street (Route 53)	Schooset Street (Route 139)	All vehicles over 2 1/2 tons	12 Hours,6AM to 6PM
Pembroke	Mill Street	Route 36 (Center Street)	Hobomock Street	2 1/2 TONS	24 hrs., 7 days
Pembroke	Oak Street	Elm Street	Pleasant Street	All vehicles over 2 1/2 tons	24 Hours, 7 Days
Pembroke	Water Street	Washington Street (Route53)	Schooset Street (Route139)	All vehicles over 2 1/2 tons	12 Hours,6AM to 6PM
Pembroke	West Street	Route 27 (School Street)	Route 36 (Center Street)	2 1/2 tons	24 hrs., 7 days
Stoughton	Chapman Road	Central Street	Turnpike Street	2 1/2 TONS	24 HRS
Stoughton	Pine Street	Pleasant Street	York Street	All vehicles over 2 1/2 tons	6AM to 7PM
Stoughton	York Street	Washington Street	Canton Town Line	All vehicles over 2 1/2 tons	13 Hours,6AM to 7PM
West Bridgewater	West Street	West Center Street	Easton Town line	All vehicles over 2 1/2 tons	24 Hours, 7 Days

6.5 Safety

Old Colony Planning Council maintains a Safety Management System that consists of a systematic process with the goal of reducing the number of and severity of traffic crashes on public roads. As part of the Safety Management System, Old Colony Planning Council continually maintains a database of the most hazardous locations throughout the region based on crash records and traffic volumes. Crash records from the Registry of Motor Vehicles are compiled by MassDOT, which in turn are provided to OCPC. These records include basic crash information such as date, time, and location; as well as details regarding number of injuries and fatalities, environmental conditions, and direction of travel. OCPC maintains a list of top crash locations in the region based on the state data. Figure 11 shows the most hazardous intersections in the Old Colony region.

Figure 11 Intersections in the OCPC Region on Top 100 Hazardous Intersection List[6]

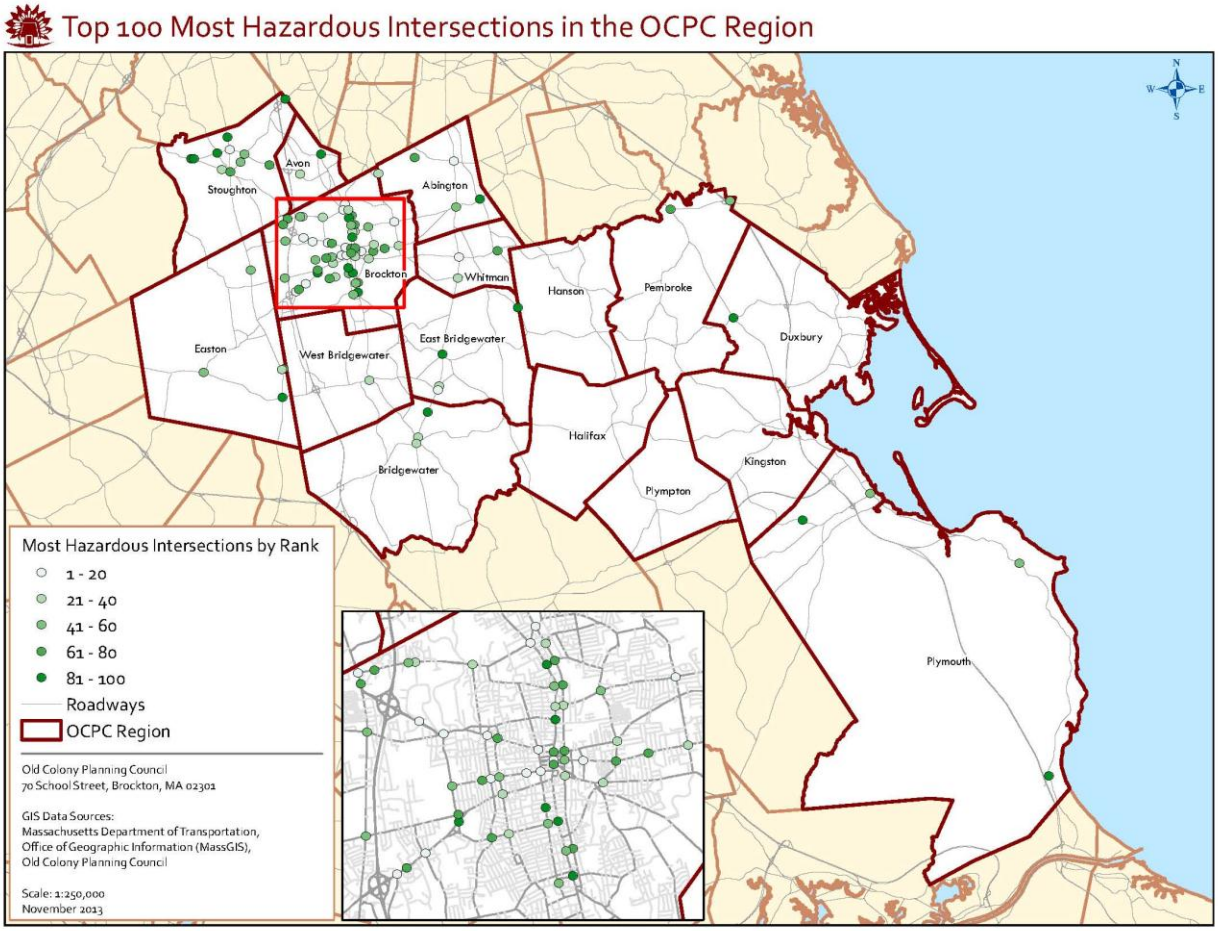


Figure 11 shows that the top 100 hazardous intersections are located within the key highway corridors where freight operations are located on the OCPC regional network. These include the Route 28 corridor in Brockton and Avon; the Route 27 corridor in Stoughton and Brocton; the Route 123 corridor in Easton and Brockton; the Main Street Corridor in Brockton, Central Street-Harrison Boulevard corridor in Stoughton and Avon; Route 106 in Easton and Bridgewater; and Route 18 in Bridgewater, east Bridgewater, Whitman, and Abington.

7 Conclusions and Recommendations

Trucking remains the primary mode of transportation for the movement of goods in the region. Route 24 is the primary trucking route in the region carrying the most freight volume. In addition, trucking facilities, warehousing, and industrial parks are clustered in the Route 24 corridor and along ancillary highways that serve Route 24. Other limited access highways important to truck freight in the region include Interstate 495 and Route 3. The state numbered route system in the region is vital as trucking facilities and industrial parks are clustered along these routes with easy access to Route 24. These include Route 106, Route 104, Route 138, Route 139, Route 27, Route 28, Route 123, and Route 27. State routes important to the Route 3 corridor include Route 3A, Route 27, and Route 139. Freight volumes shipped by truck will continue to grow in the region, therefore constraints in the highway

[6] MassDOT Highway Department interactive web-based map showing Top 200 Crash Clusters

network including limited intersection turning radii, limited bridge heights, and bottleneck congestion will have a negative impact on freight movement in the region. In addition, the lack of interstate standards on Route 24, which creates weaving problems and conflicts due to lack of acceleration and deceleration lanes, will continue to have a negative impact on freight movement in the region, as much of the region's freight operations is clustered around or utilizes the Route 24 corridor. Specific improvements to accommodate future freight movement in the region include:

- Intersections - signal timing adjustments, better signal coordination is needed in key corridors
- Intersection – limited turning radii at intersections impede truck movement, intersections should be reconfigured for wide truck turns and movements at specific intersections
- Roadway pavement surface needs to be in a state of good repair (including road/pavement markings and lane markings)
- Traffic flow issues, congestion and bottlenecks, on many of the state numbered routes heavily utilized by trucks should be addressed including Routes 24, 106, 123, Stoughton Center, Bridgewater Center, and East Bridgewater Center.
- An East-West Truck Route through Brockton is needed (of major concern are the railroad underpasses, and tight turns throughout Brockton, especially downtown)
- Interchanges on I-495 should be improved to provide for longer acceleration and deceleration lanes and to reduce weaving
- Coordination should be encouraged between the MBTA and the railroad freight operators in the OCPC region to increase the Level of Freight/Goods Movement by Rail to help reduce truck traffic congestion
- The upgrade of Route 24 to interstate standards, including the redesign and reconstruction of interchanges along Route 24, will contribute to the reduction of the potential for rollover incidents involving trucks