

1. Study Team

The Route 28 Corridor Transportation Planning Study Team will consist of the following Old Colony Planning (OCPC) staff:

- A. Ray Guarino – Study Manager
- B. Guoqiang Li – Study Management Support
- C. Bill McNulty – Programs and Funding
- D. Kyle Mowatt – Data Analysis and Technical Assistance Traffic Operations
- E. Shawn Bailey - Data Analysis and Technical Assistance Traffic Operations
- F. Matt Dyer - Data Analysis and Technical Assistance, Traffic Operations, and Environmental Resources
- G. Andrew Vidal – GIS/Map Production
- H. Megan Fournier – Public Engagement Support and Communications
- I. Elise Prince – Public Engagement Support and Communications

2. Purpose Statement

The purpose of the Route 28 Corridor Study is to evaluate in-depth the total distance of approximately 1.7 miles of Route 28 in Avon from the Brockton City Line, north through Avon to the Randolph Town Line. Route 28 in Avon is under the jurisdiction of MassDOT in its entirety in Avon. The purpose of study is to develop short-term and long-term recommendations and strategies that focus on transportation equity, improved circulation, improved mobility, reduced congestion, reduced collisions, improvements in air quality, traffic flow efficiency, and improved safety for all transportation modes, including bicycle, pedestrian, and transit modes.

The geographic scope of the study includes Route 28 from the Brockton City Line to the Randolph Town Line. The study process requires staff to review and conduct intersection levels of service analysis, crash analyses, and bus routes and transit access review. The study will include public participation as part of the process. The Route 28 Corridor Study analyses will align with industry standards and methodologies based on Federal and State guidelines and practices, with the consideration of local ordinance and statutes.

The study will determine system needs and identify operational deficiencies for the study area. The improvements developed as a result of the study will be coordinated with stakeholders and jurisdiction agencies and will be designed to support regional objectives regarding adjacent land use and future land use development. The study will consider driveway access management, improved intersection design, and improved air quality.

This study will assess existing conditions and operations in relation to service needs for the

community, regional commuting, and the economy and is intended to result in the development of short-term and long-term actions that will enhance circulation and traffic flow efficiency and improve safety. Staff will review and analyze the traffic volumes, speeds, vehicle types, capacity ratios, levels-of-service, collisions, access management design, pedestrian and bicycle traffic and infrastructure, pavement conditions, traffic control, signage, and overall physical layouts and operation. Public input will be included as part of the project identification process. Staff will utilize the Old Colony Metropolitan Planning Organization's Congestion Management Process, Safety Management System, Pavement Management System, and MassBuilds (Land Use Data Base) to assist in the identification and development of short-term and long-term recommendations for all road users, including motorized, transit, and non-motorized modes.

3. Project Timeline

The Route 28 Corridor Study will be developed under task of UPWP #3300 during Federal Fiscal Year 2025, from October 2024 through September 2025. Advance consultation with Town officials, BAT, MBTA, and the Massachusetts Department of Transportation will occur during the fall of 2024. Data collection is expected to be completed by the end of calendar year 2024. Public outreach will occur throughout the project schedule at periodic intervals. A Final Report will be presented to the Town of Avon, Massachusetts Department of Transportation, and Old Colony Metropolitan Planning Organization no later than September of 2025.

4. Public Outreach

A. Stakeholders will be identified for the study and will include those who have the potential to be impacted by the study, those who are important in the implementation of improvements, and those who have an interest in the study and process. The process will include reaching out to the business community, residents, and the public at large, groups and agencies with interests in traffic and transportation, local officials (state representatives, state senators, etc.), news organizations (local newspaper and radio), state agencies, and groups that have been traditionally underserved including the elderly, groups with limited English proficiency (LEP), minorities, and people below the poverty line.

B. The outreach program will include meetings and outreach with local officials in Avon including Administration, Planning, Department of Public Works, School Department, and Public Safety. Public meetings with stakeholders will include the presentation of findings and will solicit discussion and facilitation of improvements and recommendations. In addition to public meetings, the outreach program will include a public survey, interviews with stakeholders, and meetings with state and local officials, including MassDOT. Notices of meetings will involve the use of a variety of new media, internet postings, as well as traditional means of notice (postings in public places of convenience and newspapers). Meetings may be held virtually in a webinar format. A project webpage within the OCPC website will be created and maintained throughout the project duration.

5. Inventory and Review of Peer Studies and Planned Improvements

- A. Compile and review traffic studies by consultants and agencies pertinent to the study area.
- B. Compile and review plans, studies, and projects under design by MassDOT.
- C. Compile information on potential projects that will impact future trip generation within the study area network.

6. Assess and Analyze Existing Conditions

- A. Collect daily traffic counts, speeds, and heavy vehicle percentages at the following locations in Avon:
 1. Route 28 North Main Street at the Randolph line
 2. Route 28 East Main Street north of East Spring Street and West Spring Street
 3. Route 28 East Main Street south of Harrison Blvd.
 4. Route 28 Memorial Drive at Brockton line
 5. East Main Street west of Route 28 Memorial Drive
 6. Harrison Boulevard west of Route 28 East Main Street
 7. East Spring Street east of Route 28
 8. West Spring Street west of Route 28
 9. East High Street east of Route 28
 10. West High Street west of Route 28
- B. Collect turning movement counts (TMCs) at the following intersection locations listed below. The traffic counts will be conducted during the following times AM 7:00 AM to 9:00 AM, and PM 4:00 PM to 6:00. Turning movement counts (TMCs) will be conducted in September and October when school is in session to include the impact of school traffic.
 1. North Main Street (Route 28) at East/West High Street - Signal
 2. East Main Street (Route 28) at West Main Street/North Main Street - Signal
 3. East Main Street (Route 28) at E/W Spring Street - Stop Sign
 4. East Main Street (Route 28) at Harrison Boulevard - Signal
 5. East Main Street (Route 28) at Walmart - Signal
 6. Memorial Drive (Route 28) at East Main St Street - Stop Sign
- C. A Physical Inventory, or “Condition Diagram” will be completed for each TMC location. The physical inventory will be a sketch of the intersection showing roadways and all attributes necessary for analysis, (in conformance with the *Manual of Traffic Engineering Studies*). These include but are not limited to:
 - Street Names

- Sidewalks and bicycle tracks and/or pedestrian paths
- Bicycle lanes
- Utility poles and lighting
- Traffic signal and pedestrian signals (location of poles and the direction and lanes the signals face)
- Traffic regulations, signage, and traffic control (speed limits, stop signs, no turn on red, no parking and parking limitations, etc.)
- Hydrants and other utilities and fixtures including (but not limited to) guard rails, walls, traffic islands, curbs (granite or bituminous), and curb cuts.
- Number of vehicular lanes and lane use, including pavement markings, crosswalks, and curb ramps.
- Land uses and landmarks.
- Roadway and lane widths, as well as sidewalk and bicycle path widths
- Grades will be estimated in physical inventories.
- Sight distances will be measured at intersections where sight distances are limited.
- The date and initials of the person taking the inventory must be on the physical inventory sheet.
- Building footprints, trees, vegetation, fences, and other attributes (such as advertising signs) from abutting land use.
- Intersection skew and/or offset, skewed turning radii.

D. Signalized intersections will include documentation separate from the physical inventories showing signal timing and phasing diagrams. The locations of pedestrian signals and traffic signal heads will be shown on the physical inventories. Each signal phase shall be shown with the movements for the lanes given green marked clearly for the direction of travel, along with the clocked time. The north arrow on sketches and signal timing and phasing should always be up toward the top of the sketch.

E. Field surveillance of existing conditions will include photos and/or video of the study area corridor, documentation of locations of posted speed limits, and documentation of other pertinent traffic control and lane use restrictions within the study area corridor. The video and photos will be taken to document various conditions that affect the movement and safety of vehicles, bicyclists, and walkers. The utilization of drone technology will assist with photo and video documentation.

F. Review of existing conditions will include a field review of existing land use and a review of existing zoning within the study area.

G. Review of existing conditions will include a field review of existing pavement conditions in the study area corridors utilizing OCPC's pavement management system.

H. Traffic signal permits for signalized intersections and special speed regulation permits for study area roads will be requested from the Town of Avon and MassDOT.

I. Existing peak hour level-of-service analysis for signalized and un-signalized intersections based on 2024 base year counts shall be conducted utilizing software

based on the Highway Capacity Manual. Specifically, Synchro Plus Sim Traffic will be utilized for the analysis and this will also include micro-simulation and animation.

J. Collision data including 2021, 2022, 2023, or the three most recent years of available data for the study area intersections will be compiled and the number, type, and severity of collision shall be documented, based on the practices published in the *Manual on Traffic Engineering Studies*. Collision patterns regarding type and cause will be discerned.

K. Collision rates for the study area intersections shall be developed based on practices published in the Manual of Traffic Engineering Studies and compared to average collision rates for the state and for the region.

L. The study area will be screened for locations within the top five percent collision clusters in order to determine HSIP eligibility. The MassDOT Top 200 Collision Locations list and OCPC's Top 100 Collision Locations list will be reviewed to determine if any of the study area locations are included in those lists.

M. Data for determining non-motorized safety and accommodations at study area intersections and within the study corridor will be collected. Non-motorized safety and accommodation will be assessed at the study area intersections and within the study corridor.

N. Warrant analyses, in accordance with the *Manual on Uniform Traffic Control Devices* will be conducted at un-signalized intersections if necessary to determine the justification for traffic signals, stop sign, four-way stop, and flashing yellow/red beacon at intersections deemed feasible.

O. Bridge and culvert inventory and condition information will be documented based on the data base from MassDOT Bridge and Structure Viewer (<https://gis.massdot.state.ma.us/bridges/>).

P. Maps will be developed including but not limited to illustrating the geographic scope of the study area, as well as existing traffic counts, 85th percentile speeds, and percentage of heavy vehicles in the traffic flow.

Q. Documentation of exiting transit services (i.e. MBTA, and BAT) and demand will be documented. The documentation will include both fixed routes and paratransit services.

R. Demographic and Business Profiles will be developed and provided to provide a comprehensive understanding of the corridor land use and its potential. Staff will utilize the US Census, ESRI Business Analyst, REPLICA, and ESRI Community Analyst.

S. Sustainability involves encouraging alternative, non-motorized modes to conserve energy and reduce reliance on fossil fuels. Principles for creating more sustainable neighborhoods include designing streets and the rights-of-way to encourage shared pedestrian, bicycle, and vehicular use (Complete Streets Concepts). The Federal Highway Administration (FHWA) defines Livability as "...tying the quality and location of transportation facilities to broader opportunities such as access to good

jobs, affordable housing, high-quality schools, and safe streets. This includes addressing safety and capacity issues on all roads through better planning and design.” This study will consider livability and sustainability principles in the planning process and in the development of recommended improvements. The “Complete Streets” design strategy enables safe road access and operation for all users including pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities. Complete Streets strategies will be considered and utilized to implement the goals of Sustainability and Livability.

T. Include documentation of environmental resources and potential impact of climate change on the transportation infrastructure. Climate Change resilience is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate. Improving climate resilience involves assessing how climate change can create new, or alter current, climate-related risks, and taking steps to better cope with these risks. Review and incorporate the local Municipal Vulnerability Preparedness (MVP) Plan if available (<https://www.mass.gov/doc/avon-report/download>).

6. Forecast and Analyze Future Conditions

A. The horizon year of 2029 will be assessed to forecast future peak hour traffic, in conformance with MassDOT traffic study requirements. Future peak-hour traffic conditions will be estimated using an overall background traffic rate. The background rate will be developed based on OCPC archived data, OCPC Travel Demand Model, and a review of MassDOT’s permanent count stations (<https://mhd.public.ms2soft.com/tcds/tsearch.asp?loc=Mhd&mod=>). The future operating conditions will be determined based on the application of a regional background growth rate (currently one percent per year) to 2029 traffic plus peak hour trip generation from planned developments. Local officials from Avon will be contacted to determine the potential for planned developments in determining future traffic.

B. Peak hour Level-of-service analyses will be performed for study area intersections for future conditions including “No-Build” and “Build” conditions. Future “No-Build” conditions will include existing traffic volumes increased by the background growth rate plus traffic due to other planned developments. “Build” conditions will represent future peak hour conditions with existing volumes increased by the background growth rate plus traffic due to other planned developments and alternative recommended improvements in place. Signal Warrant Analyses, in conformance with the *Manual on Uniform Traffic Control Devices* (MUTCD), will be completed as needed for determining signalization, flashing beacons, and all-way Stop Sign control.

7. Identify Current and Potential Deficiencies

Current and potential deficiencies will be determined based on traffic and safety assessments, at the study area intersections and within the study area corridor, as well as through field assessments and the public outreach program. The identification of deficiencies (traffic congestion and levels-of-service, safety, lighting, signage, and sidewalk and pavement conditions, and ADA) will include traffic, transit, bicycle, and pedestrian analyses. These assessments will be coordinated with state and local plans and initiatives.

8. Develop Recommendations

Alternatives for improvements to traffic congestion, traffic circulation, transit, and safety hazards will be developed specific to problems identified based on the analyses, the public outreach program, and meetings with local officials and MassDOT. The improvements will also include non-motorized alternatives and will include cost-effective, short-term, and long-term recommendations.

9. Document Results

A draft report will be prepared and circulated for review and comment on the document's findings and recommendations. OCPC will prepare the draft and final reports that will include the identification of funding sources and recommendations for implementation of recommended improvements.

Project Development Timeline

| Tasks | Oct-24 | Nov-24 | Dec-24 | Jan-25 | Feb-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jul-25 | Aug-25 | Sep-25 | Oct-25 |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Develop Project Scope of Work, and study team | | | | | | | | | | | | | |
| Compile and Review Previous Studies | | | | | | | | | | | | | |
| Stakeholder Consultation | | | | | | | | | | | | | |
| Data Collection Program | | | | | | | | | | | | | |
| Automatic Traffic Recorder Counts | | | | | | | | | | | | | |
| Turning Movement Counts | | | | | | | | | | | | | |
| Physical Inventories, signage, Signal and Speed Permits, Timing and Phasing | | | | | | | | | | | | | |
| Bicycle and Pedestrian accommodations | | | | | | | | | | | | | |
| Crash Data | | | | | | | | | | | | | |
| Transit | | | | | | | | | | | | | |
| Land Use | | | | | | | | | | | | | |
| Environmental | | | | | | | | | | | | | |
| Analysis (Existing and Future No-Build) | | | | | | | | | | | | | |
| Traffic LOS | | | | | | | | | | | | | |
| Bicycle and Pedestrian LOS | | | | | | | | | | | | | |
| Crash Rates | | | | | | | | | | | | | |
| Transit | | | | | | | | | | | | | |
| Identify Current and Potential Deficiencies | | | | | | | | | | | | | |
| Public Survey | | | | | | | | | | | | | |
| Stakeholder Meetings | | | | | | | | | | | | | |
| Review Analysis and Develop Potential Improvements | | | | | | | | | | | | | |
| Solicit Input and Potential recommendations | | | | | | | | | | | | | |
| Conduct Future Conditions Analysis | | | | | | | | | | | | | |
| Develop Draft Recommendations | | | | | | | | | | | | | |
| Develop Draft Report | | | | | | | | | | | | | |
| Circulate to Stakeholders for Review | | | | | | | | | | | | | |
| Develop Final Report | | | | | | | | | | | | | |
| Circulate to Stakeholders for Review | | | | | | | | | | | | | |