

**Moving Forward RI
Long Range Transportation Plan – 2040**

**Regionally Significant Projects
and Travel Demand Model Results**

Rhode Island Division of Statewide Planning

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LONG RANGE TRANSPORTATION PLAN 2040 - Moving Forward RI

Preparation of the Long-Range Transportation Plan is part of Rhode Island's transportation planning process. The State Planning Council adopts the Long-Range Transportation Plan as an element of the State Guide Plan. As projects in the long-range plan advance to implementation, they are programmed in the State Transportation Improvement Program (STIP) for study, design, and construction, provided they obtain the necessary funding, environmental permits, and other necessary construction clearances.

The purpose of the LRTP Update is to set forth the state's long-term program for transportation projects and other transportation activities. The LRTP Update is prepared according to State Planning Council Rule IX, "Transportation Planning and Public Involvement Procedures." The Division of Statewide Planning works with the Transportation Advisory Committee (TAC) in soliciting public input in developing a draft LRTP Update. Following public and agency review, the draft LRTP Update is approved by the State Planning Council and forwarded to the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) for final review and approval.

This component of the Long Range Transportation Plan addresses Air Quality Conformity, Regionally Significant Projects, and the Rhode Island Travel Demand Model.

Air Quality Conformity

Transportation conformity for air quality is required under the Clean Air Act (CAA) section 176(c) (42 U.S.C. 7506(c)) which requires that federally funded or approved highway and transit activities are consistent with ("conform to") the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that transportation activities will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant National Ambient Air Quality Standards (NAAQS) or any interim milestones. 42 U.S.C. 7506(c)(1). EPA's transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, transportation improvement programs (TIPs), state transportation improvement programs (STIPs) and federally supported highway and transit projects conform to the SIP. 40 CFR Parts 51.390 and 93.

Prior to final approval, projects in the LRTP are subjected to the transportation air quality conformity analysis. Details on all projects included in the 2040 LRTP were reviewed as part of the Interagency consultation process with stakeholder state agencies including RIDOT, RIPTA, and RIDEM, to recommend which "regionally significant" projects should be included in the air quality conformity analysis. The regionally significant projects that were included in the Travel Demand Model "Build" condition of the conformity process for the LRTP 2040 are presented below.

See the *Transportation Conformity Determination Report for the 1997 Ozone National Ambient Air Quality Standard*.

Travel Demand Model (Rhode Island Statewide Model-RISM)

Regionally significant projects are modeled along with expected land use changes and assumptions about demographic shifts to simulate changes to the overall transportation network. The Rhode Island Statewide Model (RISM) is the Travel Demand Model (TDM) developed and maintained by the Rhode Island Statewide Planning Program. The model simulates travel patterns and future demand conditions by populating a simulated transportation system (including road and transit modes) based on data gathered from the US Census, the Highway Performance Monitoring System (HPMS), the Rhode Island Department of Motor Vehicles (RIDMV), RIPTA data, and other sources. The data generated is a method for simulating the impact of changes to the transportation system and adhering to air quality conformity regulations.

TDM forecasts for future year traffic and transit conditions are provided in this report. The regionally significant projects that were included in the Travel Demand Model "Build" condition for the LRTP 2040 are presented below. Note the estimated year of completion is not a condition of the model -- all projects were assumed to be in place under a 2040 Build condition.

Regionally Significant Projects

Regionally significant projects are defined by USDOT as 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 large scale retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally 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.

For informational and conformity purposes, the LRTP shall include all regionally significant projects proposed to be funded with federal funds other than those administered by the FHWA or the FTA, as well as all regionally significant projects to be funded with non-federal funds.

Rhode Island has developed Long-Range Transportation Plan 2040 which includes projects to reduce vehicle miles of travel and improve traffic flow. The following projects have been classified as regionally significant projects according to the USDOT definition.

Table 1. Long Range Transportation Plan 2040 – Regionally Significant Projects		
<u>Year in Service</u>	<u>Mode</u>	<u>Project</u>
2025	Passenger Rail	Pawtucket Commuter Rail Station (MBTA)
2030	Passenger Rail	*Rhode Island-Boston Regional Rail – incorporating intercity and commuter rail service enhancements to achieve faster and more frequent passenger rail service between Rhode Island and Boston
2040	Bus Transit	*Central Falls-CCRI LRT/BRT - High-capacity transit running the length of the metro area
2030	Bus Transit	*Rapid Bus Network - multiple bus routes serving Metropolitan Providence with transit priority elements and an anticipated 10 min. service frequency
2030	Highway	Route 4 and Interstate 95 Interchange
2030	Highway	Route 403 Deferred Ramps
2025	Highway	Route 4 Traffic Light Elimination
2025	Highway	Route 146 at Sayles Hill Road Interchange
2030	Highway	I-195 East Interchange at Taunton and Warren Avenues
2025	Highway	I-195 West Washington Bridge Improvements
2025	Highway	I-95 North and Route 146 North Merge
2025	Highway	Route 138 Pell Bridge Ramps Reconstruction
2035	Highway	I-95 South ProvPort Access
2030	Highway	I-295 Widening (I-95 to Route 6)
*denotes new Regionally Significant Project		

Operations, Programs and Policies

Unless otherwise noted, the following transit operations projects/services have been integrated into the travel demand model. While not Regionally Significant, these operational characteristics affect travel simulations and model estimates and are assumed to be in effect under the 2040 Build Condition. Note the estimated year of completion is not a condition of the model -- all projects were assumed to be in place under a 2040 Build condition.

Table 2. Long Range Transportation Plan 2040 – Transit Operations Projects/Services		
Anticipated Year in Service	Project/Service	Description
2030	Olneyville-East Providence Transit Emphasis Corridor	Dedicated bus lanes, transit signal priority, and improved passenger amenities running from Olneyville Square through Downtown Providence and onto East Providence.
2030	Transit Priority Applications	Dedicated bus lanes (including on-shoulder applications) and transit signal priority (including queue jumps) along corridors throughout the State predominantly within the Metro area. These applications will be completed on a project by project basis. Rapid and Regional Rapid bus routes will be prioritized.
2030	Rapid Bus Network	Introduce rapid bus service on Broad Street, Elmwood Avenue, Broadway/Manton, Cranston St, Chalkstone Ave in Providence and, Beverage Hill-East Providence and Hope/Dyer-Pocasset.
2030	Providence-Woonsocket Regional Rapid Bus	Limited-stopping service connecting Providence with Woonsocket and Lincoln. Includes dedicated bus lanes, transit signal priority, improved passenger amenities.
2030	Providence-Newport Regional Rapid Bus	Limited-stopping service connecting Providence with Newport and the East Bay. Includes dedicated bus lanes, transit signal priority, and improved passenger amenities.
2030	West Bay Regional Rapid Bus	Limited-stopping service connecting Providence with the West Bay and Newport. Includes dedicated bus lanes, transit signal priority, and improved passenger amenities.
2030	Providence-Galilee Regional Rapid Bus	Limited-stopping service connecting Providence with Southern RI. Includes dedicated bus lanes, transit signal priority, and improved passenger amenities.
2035	Wickford/Quonset Flex Zone	New Flex service would be developed in Wickford and the Quonset Business Park to enhance employee access to Quonset. The new service would provide connections between Regional Rapid Bus services and commuter rail. With longer spans of service on regional bus routes, connections would be available to Quonset for longer hours of the day from Providence, South County, Newport, and points in between.

Travel Demand Model Results

The results of modeling transportation projects in Rhode Island is reported in 4 categories:

1. Percentage of Road Network that is Reliable
2. Vehicle Miles Traveled (VMT)
3. Transit Boardings & Access
4. Jobs

The results are displayed in **Table 3. Travel Demand Model Results.**

Notes about the model: the model uses a forecast year of 2045 which is scaled back to 2040 to match the LRTP horizon year. The model does not consider the effect of bicycle improvements on travel reliability, VMT, or job access.

Percentage of Road Network that is Reliable

- Overall travel reliability of the NHS, Interstate, and Non-Interstate NHS are degrading in Rhode Island. The 2040 Build condition improves reliability only slightly with less than 1 percent improvement across all roadway classes.
- The greatest degradation of reliability is on Non-Interstate NHS roads. Reliability on Non-Interstate NHS roads decrease by nearly 5 percent from the baseline, when compared with either 2040 Build (4.6 percent) or 2040 No Build (4.84 percent).
- Overall Truck Travel Time Reliability is getting worse and there is no significant difference between the 2040 Build and No Build condition.

Vehicle Miles Traveled (VMT)

- VMT is expected to increase by 3.89 percent from the base year under a No Build scenario. When compared to Build Scenario, VMT would increase by less than 1 percent from 2015 Baseline.
- The model is using a population growth forecast of 1.5 percent (2015 to 2040). VMT is expected to increase by nearly 4 percent from the base year. VMT increases at a greater rate than the population itself in the model due to the projected location of the population growth.

Transit Boardings & Access

- Daily transit boardings would increase by 40 percent under the Build Scenario when compared to base year. Under No Build, transit boardings would increase by only 5 percent. Boardings are counted each time a person boards a bus. The results could indicate a large increase in ridership, or that transfers would increase under the Build Scenario. The most likely interpretation is that transfers would increase somewhat and there would be an increase in ridership.
- Under the Build Scenario, the percentage of the population with access to transit would rise by 5.55 percent over the no build scenario. The population with access to “Frequent or Better” transit would rise by 40.99 percent. The population with access to “Some” form of transit would

get worse, but this is because the investments in the plan are largely targeted at improving existing services.

- If no transit improvements are made, the population with access to some kind of transit is expected to decrease commensurate with a growing suburban population in the state (where transit is not normally provided).

Jobs

- Under baseline conditions, 20 percent of job locations have access to frequent or better transit. In 2040 Build, 60 percent of job locations will be served by frequent or better transit, an improvement of 40 percent. Put another way, someone riding transit would be able to reach more employment locations in the same amount of time.
- Under the Build Scenario, the percentage of job locations served by “Some” form of transit would get worse. This suggests that the transit improvements are concentrated in the metro area in forecast years.

Moving Forward RI

This white paper addresses Air Quality Conformity, Regionally Significant Projects, and the Rhode Island Travel Demand Model. While not required for Air Quality Conformity, travel demand modeling can be an effective tool for modeling the effect of future projects on travel conditions in the state and evaluating benefits relative to programming scenarios. Modeling can and will be updated from time to time and the results will be posted on the Division of Statewide Planning’s website, Planning.RI.gov.

Table 3. Travel Demand Model Results					
Percentage of road network that is reliable				Change	
	2019	2040 No Build*	2040 Build*	Baseline to No Build	No Build to Build
NHS	80.60%	79.79%	79.95%	-0.81%	0.16%
Interstate	88.40%	85.73%	86.06%	-2.67%	0.32%
Non-Interstate NHS	88.40%	83.56%	83.80%	-4.84%	0.24%
Truck Travel Time	1.79	1.87	1.86		
	2015	2040 No Build*	2040 Build*		
VMT by County	38,116,139	39,599,953	38,456,281	3.89%	0.89%
Bristol	960,553	993,354	989,818		
Kent	6,298,954	5,792,821	5,713,157		
Newport	3,015,791	3,198,341	3,206,767		
Providence	23,346,423	25,814,826	24,765,768		
Washington	4,494,418	3,800,612	3,780,771		
Transit Boardings	60,896	63,947	89,249	5.01%	39.57%
Transit Access Metrics					
RI Population	1,053,661	1,070,104	1,070,104	16,443	1.56
Frequent or Better	8.24%	8.38%	49.37%		
Some	65.57%	64.45%	29.02%		
None	26.19%	27.16%	21.61%		4.58
Jobs	495,440	523,863	523,863	28,423	5.74
Frequent or Better	19.68%	18.33%	59.19%		40.86
Some	66.04%	65.72%	30.85%		
None	14.28%	15.95%	9.96%		
Notes					
* 2040 estimates scaled back from 2045 estimates					
** 2015 used as Baseline for VMT, Transit and Jobs					
*** Model does not include shift to bicycle usage					