

4.0 MEASURES OF EFFECTIVENESS

This Chapter presents the evaluation criteria for comparing the performance of the scenarios that were developed in Chapter 5, Alternative Land Use Scenario, Chapter 6, Transit Scenario and Chapter 7, Roadway Scenarios. The Study Team, with input from the Steering and Advisory Committees, developed performance evaluation criteria that were identified as “Measures of Effectiveness” (MOE). The MOEs were based on the deficiencies, opportunities and goals identified in the Purpose and Need Statement.

Twenty-seven MOE’s were developed and were divided into five groups. The five groups are:

- Traffic and Safety;
- Mode Choice;
- Accessibility and Livability;
- Land Use; and
- Other.

The following identifies the five groups and a description of the MOE’s in each group. The four core communities referenced in the following MOE’s are the communities of Gorham, Scarborough, South Portland, and Westbrook.

4.1 Traffic and Safety

1. **Roadway and Intersection Level of Service (LOS)** – Provides a summary of selected intersection and roadway LOS within the four core communities as well as State Routes where feasible in Buxton, Hollis, Portland, Standish and Windham.
2. **Vehicle Miles Traveled (VMT)** – Reports all miles traveled by all vehicles by Town for the entire Study Area for all roads including residential roads in the peak hour.
3. **Vehicle Hours Traveled (VHT)** - Reports all hours traveled by all vehicles by Town for the entire Study Area for all roads including residential roads in the peak hour.
4. **Crash Summary** – Reports the total number of crashes in the four core communities from January 2006 through December 2008, including the number of High Crash Locations, involving cars, trucks, animals, bicycles, and pedestrians. Also calculates the change in crash rate (percent and absolute number) based on volume change through a node or link per hundred million vehicle miles.
5. **Traffic Volumes** – Identifies change in roadway volumes for all roads in the nine communities listed in Number 1 above in the peak hour.
6. **Corridor Delays** – Measures of travel time and distances between selected Origins and Destinations within entire Study Area along each Study Area corridor in the peak hour.

7. **Fuel Used** – Provides a summary of fuel used (gallons) within the four core community intersection network as estimated through traffic analysis using fuel consumption tables in the peak hour.
8. **Vehicle Emissions** – Provides a summary of vehicle emissions within the four core community intersection network as estimated through traffic analysis software using standard emission rates for the peak hour.
9. **Average Commuting Time and Distance** – Estimates of average commuting times and distances (by mode) to specific job centers or downtowns within entire Study Area in the peak hour.

4.2 Mode Choice

10. **Modal Trips** – Summary of transit and walk/bike trips for entire Study Area from the Mode Choice Model²² in the peak travel hour.
11. **Transit Potential** – Measure of number of people who reside and/or work within ¼ mile of existing or future transit routes. Measure would be by traffic analysis zone (TAZ²³) data within the four core communities.
12. **How People Travel** – A summary table with the number of people traveling by mode (single occupancy vehicle, carpool, bus, walk/bike) for work trips by Town for the entire Study Area.

4.3 Accessibility and Livability

13. **Percent of Households within Critical Emergency Medical Service (EMS) Response Time** – Measure of number of homes within EMS response time (4 minutes) by Town in the entire Study Area.
14. **Job Accessibility** – Measure of number of jobs divided by distance to jobs from TAZ within the four core communities.
15. **Retail Accessibility** – Measure of number of retail jobs divided by distance to retail jobs by TAZ within the four core communities.
16. **Number of Accessible Jobs** – Measure of number of jobs within 30 minutes (drive, walk, bike or transit) of selected residential areas (specific growth cores, outer suburbs, etc.) within the four core communities plus Windham and Portland.

²² Mode Choice Model estimates how many people will use public transit and how many will use private automobiles.

²³ A traffic analysis zone (TAZ) is a special area delineated by state and/or local transportation officials for tabulating traffic-related data- especially journey-to-work and place-of-work statistics.

17. **Number of Accessible Households** – Measure of number of households within 30 minutes (drive, walk, bike or transit) of selected urban cores, core areas, or downtowns within the four core communities plus Windham and Portland.
18. **Jobs / Acre** – Density measure using defined industry standards for jobs within growth cores within the four core communities.
19. **Households / Acre** - Density measure using defined industry standards for households within growth cores within the four core communities.
20. **Population / Acre** - Density measure using defined industry standards for population within growth cores within the four core communities.

4.4 Land Use

21. **Acres of Land Consumed** – Measure of how much land would be consumed by both jobs and housing within the four core communities.
22. **Job / Housing Ratio** – Calculate jobs/housing ratio by TAZ. by Town and entire Study Area.
23. **Viewsheds** – Estimate number of identified comprehensive plan viewsheds within the four core communities that would be impacted with proposed strategy.
24. **Habitat Fragmentation** – Measure to be determined on Beginning with Habitat (BWH) causeway connectivity maps.
25. **Open Space / Rural Land Impacts** – Measure of how many additional acres would be developed in TAZs identified as truly rural (approximately 100 TAZs) within the four core communities.

4.5 Other

26. **Cost** – Order of magnitude cost for each strategy.
27. **Resource Impacts** – Map overlay of strategies on resources (natural, physical, historic) within the four core communities.