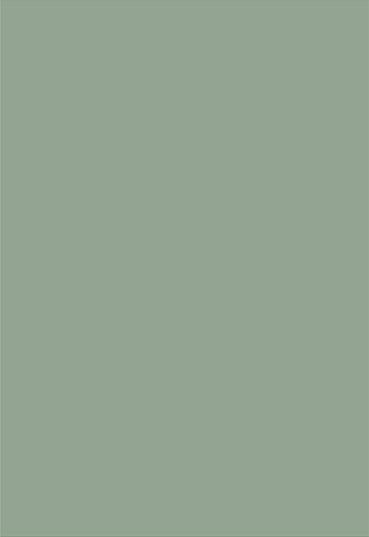




I-93 Transit Investment Study



TECHNICAL ADVISORY COMMITTEE



June 12, 2008

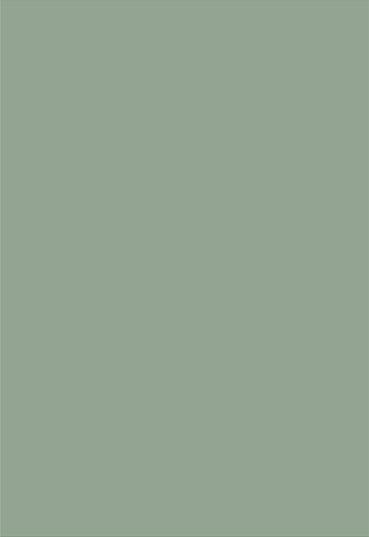
**New Hampshire Department
of Transportation**

**Massachusetts Executive Office
of Transportation**

HNTB



Agenda

- Ridership
 - Key Findings
 - Action Steps
- 

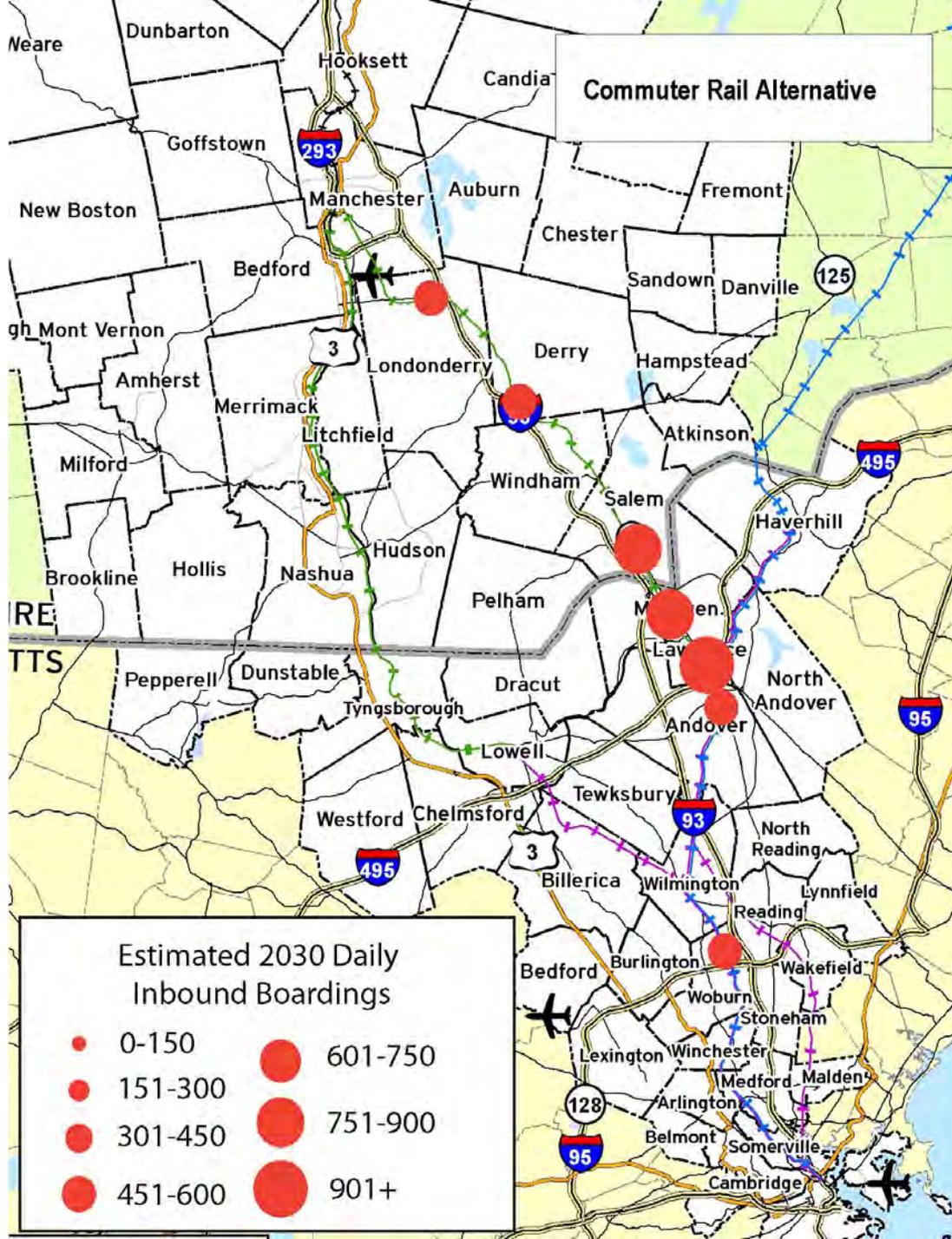
Estimated Average Daily Inbound Boardings (2030)

Alternative	New Hampshire Stations									Massachusetts Stations					Total	
	Manchester	Exit 5/ Londonderry		Exit 4/ Derry		Exit 3/ Windham		Exit 2/ Salem		Methuen	Lawrence	Andover	Anderson / Woburn	Boston Alightings (%)		
Commuter Rail on M&L	N/A ¹	475-525		485-540		N/A		830-910		760-840	1,310 - 1,450	550-610	460-500	94%	4,870 to 5,375	
Bus On Shoulder ²	650-725	865-965		260-315		360-410		560-620		2,250-2,510		N/A	N/A	N/A	100%	4,945 to 5,545
		55-65	810-900	50-55	210-260	10-20	350-390	0	560-620	100 - 120	2,150-2,390					
No Build	380-420	530-590		120-140		120-140		530-590		N/A	N/A	N/A	N/A	N/A	1,680 to 1,880	

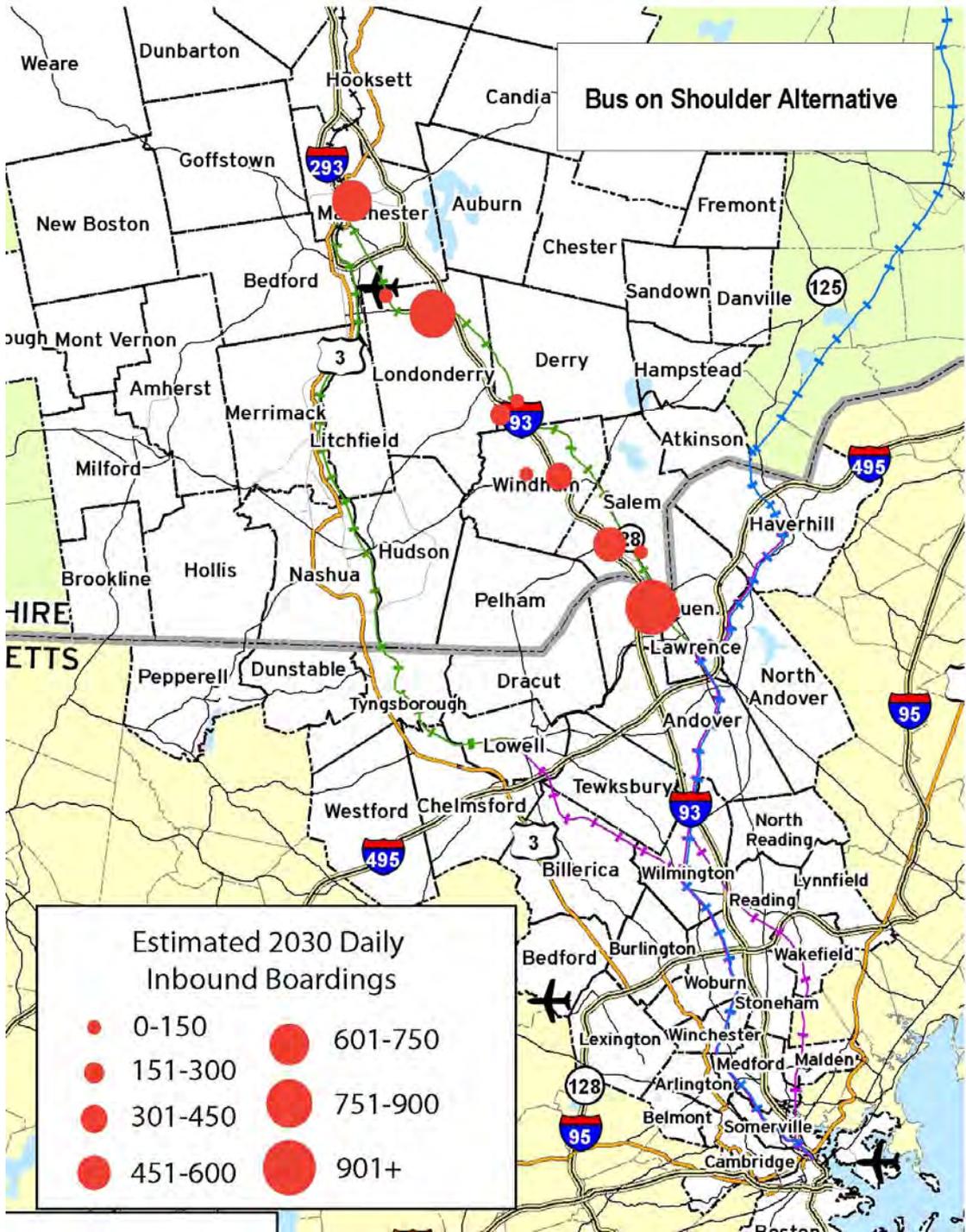
Notes:

- 1 – Concord Trailways service from Manchester (operating as it does today) is estimated to have 700 daily inbound boardings
- 2 – Ridership for specific bus stops are included. Number to left is “town center” (or Airport) stop, number to right is Park and Ride stop.





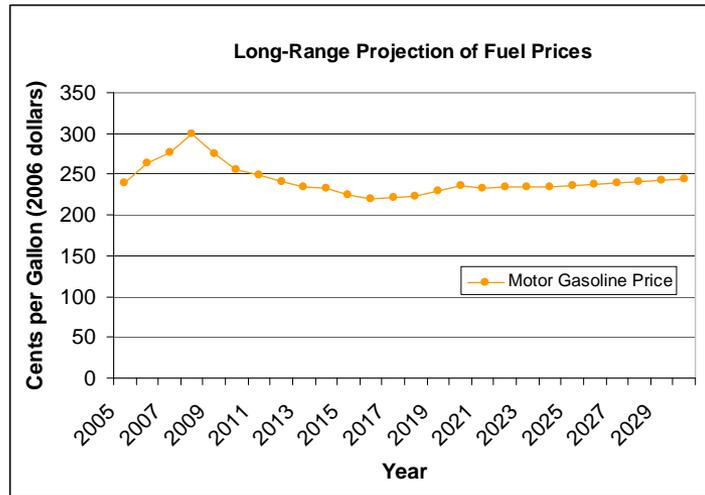
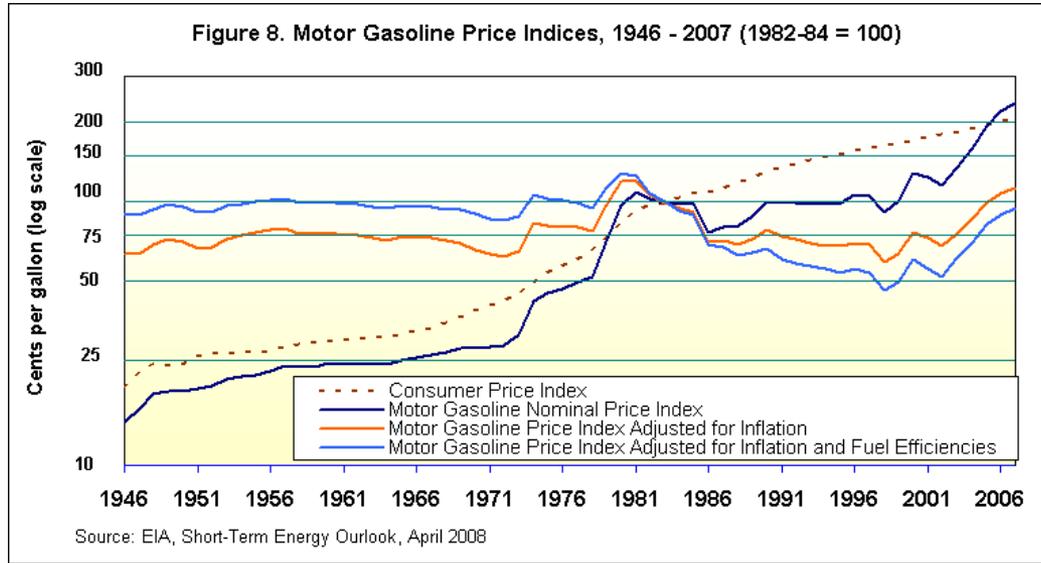
Bus on Shoulder Alternative



Estimated Average Daily Inbound Boardings (2030)
Airport Alignment

Alternative	New Hampshire Stations					Massachusetts Stations					Total
	Manchester	Exit 5/ Londonderry	Exit 4/ Derry	Exit 3/ Windham	Exit 2/ Salem	Methuen	Lawrence	Andover	Anderson / Woburn	Boston Alightings (%)	
Commuter Rail on M&L	N/A ¹	475-525	485-540	N/A	830-910	760-840	1,310 – 1,450	550-610	460-500	94%	4,870 to 5,375
Commuter Rail on M&L (with Airport Tunnel)	410-450 (Manchester) 390-560 (Airport)	230-250	485-540	N/A	830-910	760-840	1,310 – 1,450	550-610	550-610	89%	5,425 to 6,110

Gas Price Sensitivity Analysis Background



Note: Sales weighted-average price for all grades. Includes Federal, State, and local taxes.

Source: Energy Information Administration, Annual Energy Outlook 2008

Estimated Average Daily Inbound Boardings (2030) Gas Price Sensitivity Analysis ³

Alternative	New Hampshire Stations								Massachusetts Stations				Total		
	Manchester	Exit 5/ Londonderry		Exit 4/ Derry		Exit 3/ Windham		Exit 2/ Salem		Methuen	Lawrence	Andover		Anderson / Woburn	
Commuter Rail on M&L	N/A ¹	475-525		485-540		N/A		830-910		760-840	1,310 – 1,450	550-610	460-500	4,870 to 5,375	
Commuter Rail on M&L with doubling of gas price ¹ (% increase)	N/A ¹	570-630 (20%)		580-640 (20%)		N/A		990-1,100 (20%)		880-980 (16%)	1,490-1,650 (14%)	650-710 (17%)	500-550 (8%)	5,660 to 6,260 (16%)	
Bus On Shoulder ²	650-725	865-965		260-315		360-410		560-620		2,250-2,510		N/A	N/A	N/A	4,945 to 5,545
		55-65	810-900	50-55	210-260	10-20	350-390	0	560-620	100 - 120	2,150-2,390				
Bus On Shoulder ² with doubling of gas price (% increase)	760-840 (16%)	930-1,030 (8%)		320-360 (13%)		410-460 (13%)		640-700 (14%)		2,525-2,780 (12%)		N/A	N/A	N/A	5,585 to 6,170 (12%)
		65-75	865-955	55-65	265-295	10-20	400-440	0	640-700	125-140	2,400-2,650				

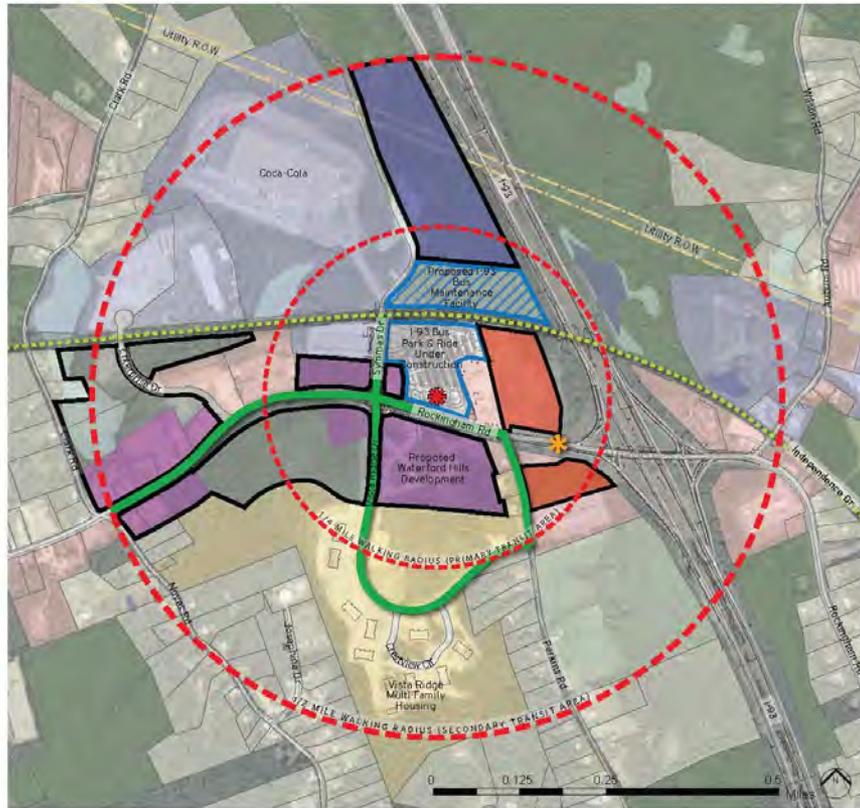
Notes:

- 1 – Doubling of cost of gas equals 2Q 2006 cost of gas (\$2.49) time two.
- 2 – Ridership for specific bus stops are included. Number to left is “town center” (or Airport) stop, number to right is Park and Ride stop
- 3 – Sensitivity Analysis included only direct adjustments to the model’s fuel price and did not include changes that may change indirectly to increased fuel prices(i.e. transit fares or VMT).



FIGURE 4: LONDONDERRY, NH - I-93 BUS STATION WITH PARK & RIDE ALTERNATIVE

I-93 Transit Study: Station Area Plan Recommendations



PROPOSED RECOMMENDATIONS LEGEND

- Bus Station with Park & Ride (Under Construction)
- Future Redevelopment Opportunity Site
- Future Multi-Family Residential (Senior Housing)
- Future Commercial (Retail)
- Future Commercial (Office)
- Future Industrial
- Proposed Streetscape Improvement
- Proposed Rails-to-Trail
- Proposed Gateway Feature

EXISTING LAND USE LEGEND

- Single Family
- Multi-Family
- Mobile Home
- Commercial
- Light Industrial
- Public/Institution
- Open Space/Recreation
- Forested
- Gravel Pits and Quarry
- Vacant
- Water
- Wetland

General Station Area Recommendations:

- Londonderry could adopt design standards for its gateway commercial area that encourage rural building styles, impart a unified environment, and provides pedestrian amenities such as sidewalks, streetlamps, and landscaping.
- Additional office and retail uses would be appropriate for future redevelopment sites along Rockingham Road in order to provide local goods and services to residents and commuters.
- A "rails-to-trail" path could potentially be established along the inactive Manchester & Lawrence railroad corridor to provide recreational options for local residents, subject to protection of this right-of-way for future transit use.

Future Development Examples



The new bus station constructed at the I-93 Exit 4 park-and-ride lot is a bus station prototype that could be used for the I-93 Exit 5 park-and-ride lot.



Multiple office uses built within a village setting would provide a unique development framework for Londonderry's gateway commercial area west of the I-93 interchange.



New individual commercial buildings could mimic traditional small-town architecture and provide a quality alternative to conventional highway-oriented development.



Londonderry could encourage national retailers that use traditional small-town architecture to locate within its gateway commercial area



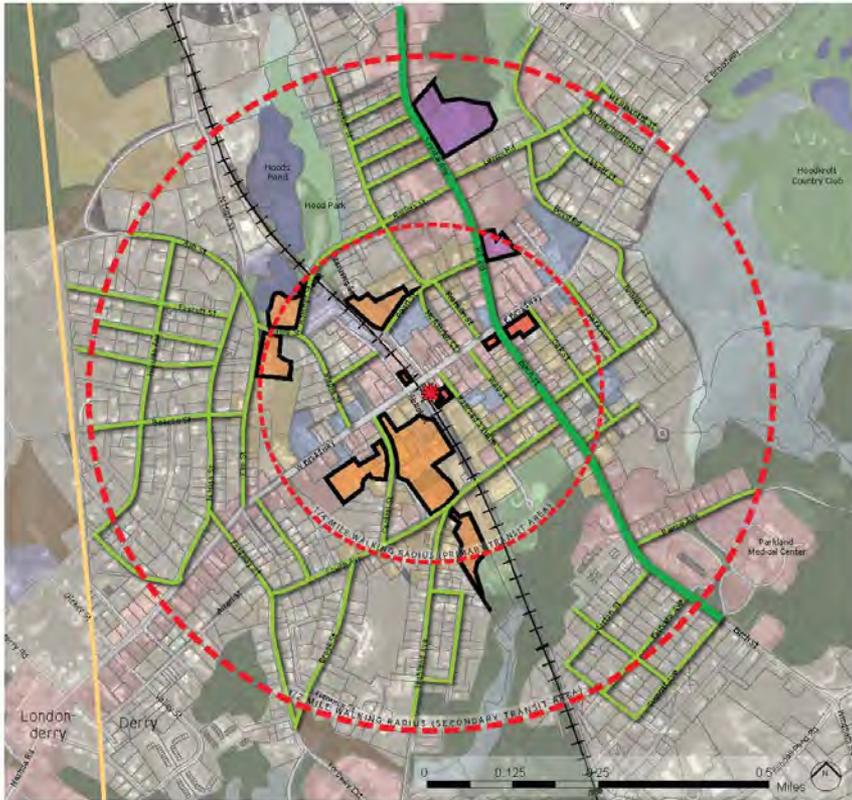
Londonderry could encourage local retailers to use traditional small-town architecture by adopting design guidelines for new construction.



Senior housing that mimics farmhouse buildings could be appropriate for future redevelopment of agricultural lands that are adjacent to single family homes.

FIGURE 2: DERRY, NH - I-93 COMMUTER RAIL STATION ALTERNATIVE

I-93 Transit Study: Station Area Plan Recommendations



PROPOSED RECOMMENDATIONS LEGEND

- Proposed Commuter Rail Station
- Proposed Commuter Rail Corridor
- Future Redevelopment Opportunity Site
- Future Multi-Family Residential
- Future Commercial
- Future Mixed-Use Commercial
- Proposed Business Improvements (concrete/brick sidewalks, street trees, and pedestrian lights)
- Proposed Neighborhood Improvements (one concrete or brick sidewalk per street)
- Existing Municipal Boundary

EXISTING LAND USE LEGEND

- | | |
|--------------------|------------------------|
| Single Family | Open Space/ Recreation |
| Multi-Family | Forested |
| Mobile Home | Gravel Pits and Quarry |
| Commercial | Vacant |
| Light Industrial | Water |
| Public/Institution | Wetland |

General Station Area Recommendations:

- Several sites along West and East Broadway could serve future redevelopment purposes for mixed-use commercial and residential buildings, which could provide modern retail space and new housing options near the proposed commuter station.
- Based on infill residential trends in Downtown Derry, there are several larger sites that could be redeveloped for multi-family residential uses depending on the ease of parcel consolidation and any potential need for environmental remediation.
- Derry could implement new streetscape standards along Crystal Avenue and a new residential streets program within the station area to encourage walking to the proposed commuter station and downtown businesses.

Future Development Examples:



Derry's recently constructed municipal building provides a new precedent for modern architecture, construction, and design within the downtown.



Large-scale, mixed-use buildings may be appropriate for future redevelopment of primary corner sites along West and East Broadway.



Small-scale, mixed-use buildings may be appropriate for future redevelopment of mid-block infill sites along West and East Broadway.



Townhouses may be appropriate for future multi-family redevelopment sites within a five-minute walking distance of the proposed train station.



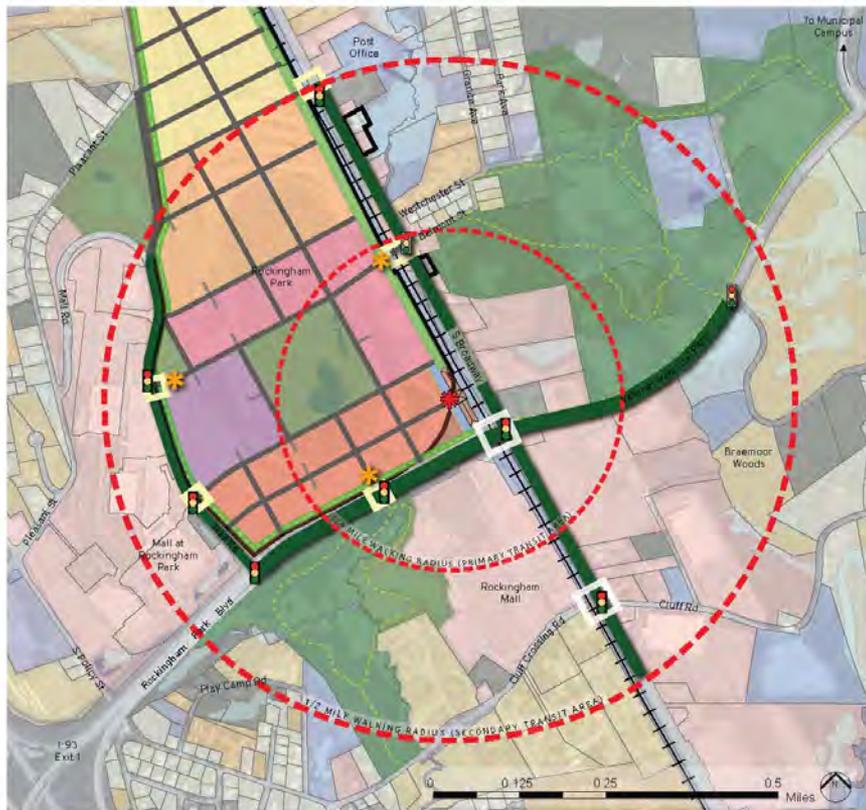
Additional streetscape improvements, such as regularly spaced street trees and landscape planters, could enhance the pedestrian-friendly atmosphere along West Broadway.



A more defined pedestrian realm with street trees, sidewalks, landscaping, and minimal building setbacks would provide a pedestrian-friendly atmosphere along Crystal Avenue.

FIGURE 8: SALEM, NH - I-93 COMMUTER RAIL STATION ALTERNATIVE

I-93 Transit Study: Station Area Plan Recommendations



PROPOSED RECOMMENDATIONS LEGEND

- Potential Commuter Rail Station
- Potential Commuter Rail Corridor
- Signalized Intersection
- Future Redevelopment Opportunity Site
- Potential At-Grade Railroad Crossing
- Proposed Signalized Intersection
- Proposed Pedestrian Crossing Improvement
- Mixed-Use "Main Street" District
- Office, Hotel or Entertainment
- Mixed-Use Commercial with Residential
- Multi-Family Residential
- Single-Family Residential
- Proposed Open Space

- Proposed Boulevard-Type Streetscape Improvements
- Proposed Open Space Buffer
- Proposed Street Network
- Proposed Gateway Feature
- Existing Bike Path
- Proposed Bike Path

EXISTING LAND USE LEGEND

- Single Family
- Multi-Family
- Mobile Home
- Commercial
- Light Industrial
- Public/Institution
- Open Space/Recreation
- Forested
- Gravel Pits and Quarry
- Vacant
- Water
- Wetland

General Station Area Recommendations:

- Based on Salem's 2001 Master Plan, a future land use alternative for the Rockingham Park Racetrack could be the creation of a new pedestrian-oriented downtown district with mixed uses, including retail, office, entertainment, hotel, convention center, and housing.
- The proposed commuter rail station at the M&L railroad could be sited adjacent to a pedestrian-oriented downtown district within the Rockingham Park Racetrack site and provide a highly integrated transit-supportive environment.
- A network of multi-use paths could provide an alternative to access the proposed train station, unify a new downtown district at the Rockingham Park Racetrack, and connect the area's natural open spaces as a recreational amenity.

Future Development Examples



A pedestrian-friendly downtown district at the racetrack site could provide new opportunities for local and regional residents to live, work, shop, and visit.



A recent evolution in retail development is the "lifestyle" center that provides mixed uses in a pedestrian-friendly downtown environment.



The racetrack site would be appropriate for new multi-family residential uses, such as condominiums, lofts, or apartments, which are connected with a downtown district.



Townhouses would be another appropriate multi-family residential use at the racetrack site, and could be connected with a downtown district.



Multi-use paths could be constructed for recreational and transportation purposes throughout the station area and with the area's natural open spaces.



A portion of the Rockingham Park Racetrack could serve as a major public park or "village green" within a mixed-use downtown district.

**Estimated Average Daily Inbound Boardings (2030)
TOD Sensitivity Analysis**

Alternative	New Hampshire Stations								Massachusetts Stations					Total		
	Manchester	Exit 5/ Londonderry		Exit 4/ Derry		Exit 3/ Windham		Exit 2/ Salem		Methuen	Lawrence	Andover	Anderson / Woburn		Boston Alignings (%)	
Commuter Rail on M&L	N/A ¹	475-525		485-540		N/A		830-910		760-840	1,310 - 1,450	550-610	460-500	94%	4,870 to 5,375	
Bus On Shoulder ²	650-725	865-965		260-315		360-410		560-620		2,250-2,510		N/A	N/A	N/A	100%	4,945 to 5,545
		55-65	810-900	50-55	210-260	10-20	350-390	0	560-620	100 - 120	2,150-2,390					
No Build	380-420	530-590		120-140		120-140		530-590		N/A	N/A	N/A	N/A	N/A	1,680 to 1,880	



I-93 Corridor Ridership Forecasts

Key Findings

- **Ridership on bus on shoulder alternative and M&L rail are equivalent.**
- **Bus on shoulder ridership from town centers is low; this is essentially a park-and-ride strategy.**
- **Ridership to Manchester airport, about 390-560 daily boardings, is low, but realistic.**
- **Extending M&L service from Exit 5 through the airport to downtown Manchester, adds about 700 boardings, increase of eight percent.**

I-93 Transit Investment Study

- **As expected, rail alternative is strongly Boston-oriented; 89% of southbound alightings are at North Station.**
- **Neither rail nor bus on shoulders serves I-495 and 128 corridors well, an expected finding.**
- **A high percentage of rail benefits accrue to Massachusetts residents; 67 percent of southbound boardings are at Massachusetts stations.**
- **No alternative will divert enough traffic from the I-93 roadway in NH to affect levels of service.**

Evaluation Summary

Option	Capital Costs	O&M Costs	Week-day Trips	Environment	Land Use	
M&L Boston to Exit 5	\$197M	\$9.2M	10,200	High	High	
Bus on Shoulder	\$80 M	\$4.9M	10,400	High	Med-Low	

Annual Non-Federal Requirements

	Bus on shoulder	M&L
Total capital	\$80M	\$197M
Federal share	\$40M	\$98.5M
Annual non-federal	\$2.5M	\$5.9M
Annual O&M	\$4.9M	\$9.2M
Total annual non-federal	\$7.4M	\$15.1 M

New Starts Process Overview

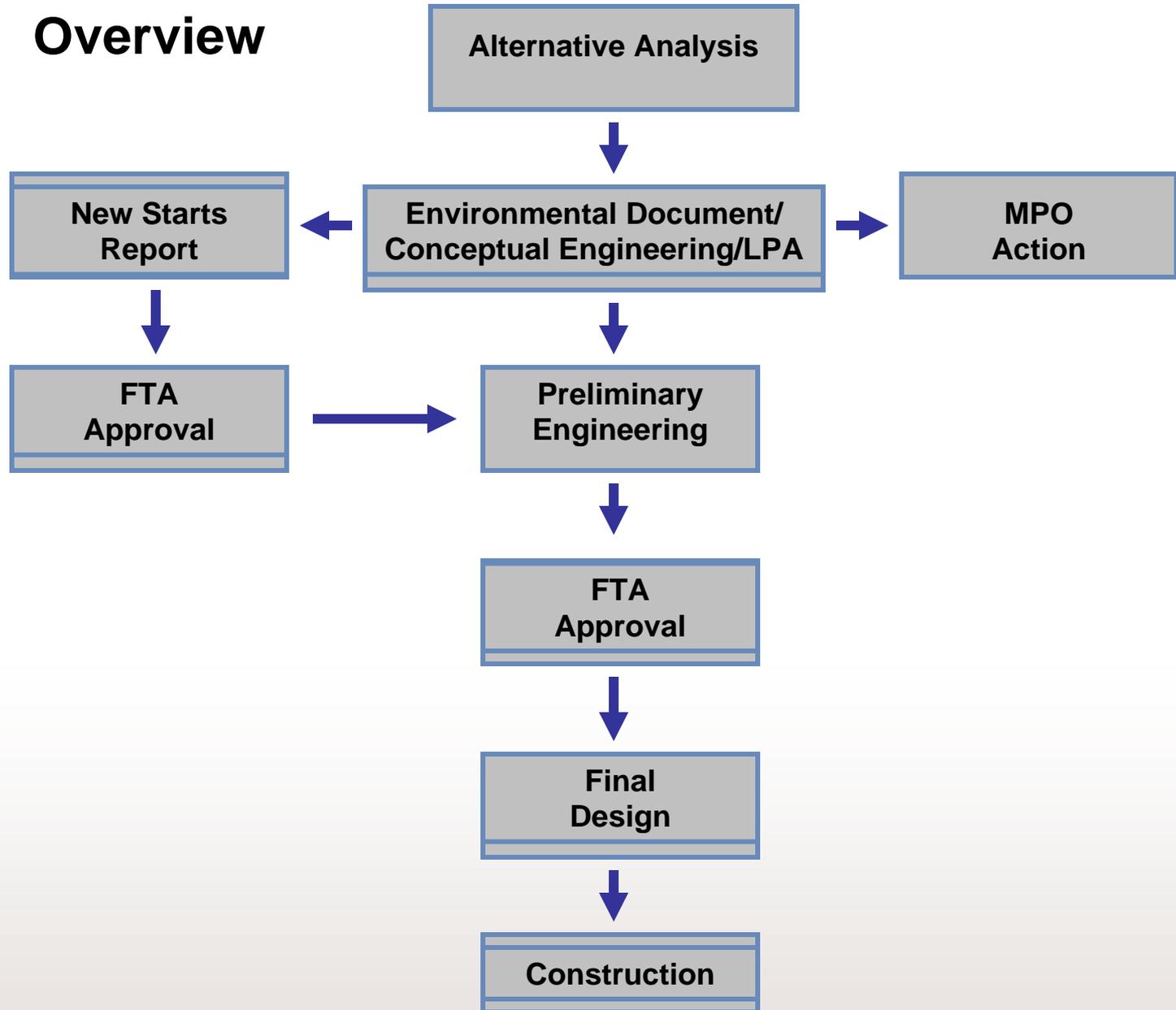
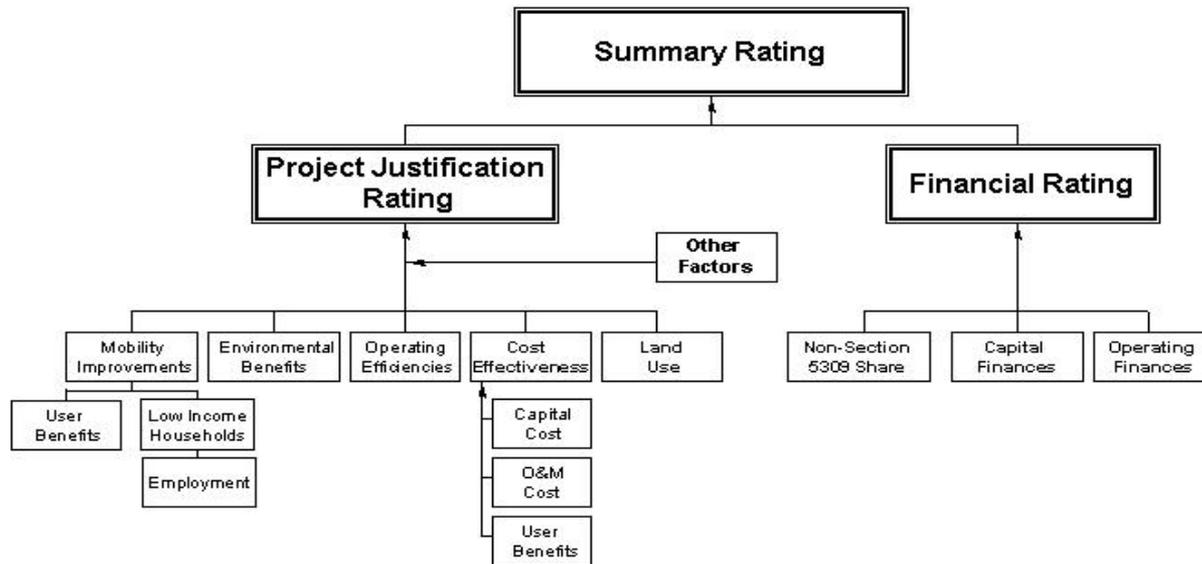


Figure I-1 New Starts Evaluation Process

The FTA New Starts Evaluation and Rating Framework



Minimum Project Development Requirements:

Metropolitan Planning and Programming Requirements	Project Management Technical Capability	NEPA Approvals	Other Considerations
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- Implement Bus On Shoulder *in phases*.
- Actively preserve M&L r-o-w for future transit use.
- Develop bi-state agreements for both BOS and M&L.
- Establish time line for decisions on M&L.
- Pursue federal and local funding.