



MGNA
Medford Green Line Neighborhood Alliance
www.medfordgreenline.org
info@medfordgreenline.org

January 8, 2010

Secretary Ian Bowles
Executive Office of Energy and Environmental Affairs
MEPA Office
Attn: Holly Johnson, MEPA Analyst
EEA #13886
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Bowles,

The Medford Green Line Neighborhood Alliance (MGNA) once again welcomes the opportunity present comments on the Green Line extension project, in this case regarding the Draft Environmental Impact Report (EEA #138860).

The MGNA is a group of citizens who support the proposed Green Line extension to Medford, and who advocate for proactive involvement from the city, its residents and all stakeholders to ensure that the extension is completed in a manner that is most beneficial to the community.

MGNA views the Green Line extension as a historic opportunity for Medford residents, businesses and institutions to gain a major improvement to the region's transportation infrastructure that will serve the community well for decades. Executed properly and carefully, the Green Line will provide thousands of Medford residents with an efficient, environmentally friendly alternative to automobile use; provide better access to employment, cultural, educational and health care opportunities; improve air quality; and make Medford overall a better place to live, work and visit.

For the past four years, MGNA has been actively reaching out to all segments of the community to encourage active participation in the planning process – whether individually, as part of a neighborhood or constituency group, or as part of our alliance – and also striving to become more informed itself about the many complex issues that this project comprises.

We have conducted dozens of meetings and workshops; conducted outreach inviting civic participation; distributed informational material; and prepared two Station Study reports assessing all factors related to the Green Line extension in Medford.

Your predecessor, former Secretary Robert Golledge, included several of MGNA's recommendations in the Dec. 1, 2006 MEPA Certificate that determined the requirements for the DEIR. These included defining the scope of the project so as to include evaluation of a station at Mystic Valley Parkway (Route 16) on the Somerville/Medford line; examining the feasibility of a station in between sites also being considered at College Avenue and Winthrop Street in Medford; the need for close coordination of the project planning with the Minuteman-to-the-Mystic path; and the request for full participation by environmental justice populations through the creation of a citizens advisory committee.

To varying degrees, the Secretary's requirements were met in the DEIR. The station in between College Avenue and Winthrop Street was studied, although not recommended; the anticipation of the Minuteman-to-Mystic path was considered in ridership projections and in determining the crucial need for bicycle and pedestrian accommodations; a citizens advisory group was appointed and meetings were held regularly, often in locations in or near environmental justice neighborhoods in Medford.

But the DEIR's most significant failure is not having fully analyzed nor designed the Mystic Valley Parkway (Route 16) station to minimize impacts and maximize the benefits – this despite the fact that the DEIR designates the Route 16 terminus station as its Preferred Full-Build Alternative for the project.

Rather, the DEIR presents what Project Manager Steve Woelfel termed the “worst-case scenario” design for the Route 16 station, one that would require the acquisition of two large office buildings in Medford, add at least \$20 million to the cost of the project, and result in a decrease of almost \$185,000 in annual property tax revenue to the city of Medford – all negative impacts the DEIR was required to try to minimize.

Curiously, Mr. Woelfel indicated to the Medford City Council on Nov. 17, 2009, that MassDOT has another design for Route 16 that does not require the two major property acquisitions, but that it had yet to publicize it.

MGNA, on the other hand, has created an alternative design for the Route 16 station that we are pleased to submit to you as an addendum to our DEIR comments, which also are attached.

The MGNA alternative design adjusts the track curvature and platform orientation such that the need to acquire the commercial properties at 200 and 222 Boston Avenue is eliminated. Further benefits of such a design include:

- Reducing the project cost by at least \$15.4 million (the buildings' current assessed values).
- Preserving about \$185,000 in annual property tax revenue for the city of Medford
- Eliminating the need to relocate numerous small businesses and more than 200 employees, and the related expense

- Obviating the sliver takings of residential property at the north end of Piggott Road

This design was created in strict accordance with the Draft Schematic Design Guidelines for the Green Line Extension Project as provided by MassDOT and other regulations for light, heavy and freight rail operations . It also was thoroughly reviewed by an independent professional civil engineer with nine years experience in the field with a concentration on rail/transit design.

MGNA asks MEPA to not accept the Draft Environmental Impact Report as a Final EIR, as MassDOT is requesting. Rather, we ask that you require MassDOT to continue its environmental impact analysis, including analysis of the MGNA alternative design for the Route 16 station (or a comparable alternative that accomplishes the same aims). MassDOT also should be required to analyze the potential adaptive re-use of the U-Haul building at 600 Mystic Valley Parkway, Somerville, as part of the station design.

In addition, further analysis is required at the station regarding:

- Providing a pedestrian connection to the West Medford commuter rail station, which was required in the DEIR but not addressed.
- Re-evaluating potential ridership to include additional bus route access, which is not considered in the DEIR.
- Including Alternative 2 (Mystic Valley Parkway terminus) in Air Quality Analysis Comparison for Project Packages Benefits; Table 5.6-10 only includes Alternative 1 (College Avenue terminus). The Mystic Valley Parkway terminus will result in greater CO₂ reductions (page 5-94) and should be included in the analysis.

All of this analysis should be required as part of an additional EIR submission to MEPA.

MGNA also feels the DEIR should not be accepted as final for:

- Failing to fully analyze the impacts of a College Avenue station as the terminus on the main branch to Medford, which is the proposal for Phase I of the project and for an undetermined period thereafter.
- Failing to fully assess environmental impacts and address mitigation measures, particularly in the Medford Hillside area, which will *not* be served by the Green Line extension if it terminates at College Avenue, and actually will bear additional burdens that would not be inflicted if the terminus station were at Route 16.

The value and importance of the Route 16 station to the success of the Green Line extension project cannot be overstated. The DEIR concludes that the Preferred Full-Build Alternative provides the greatest benefits with regard to air quality, mobility, ridership and environmental justice.

Last November, outgoing Secretary of Transportation James A. Aloisi reiterated his strong support for the Route 16 terminus station:

“The Green Line extension is a lost opportunity without the clear and unequivocal commitment of extending the line to Route 16,” Aloisi wrote to Governor Deval Patrick.

Speaking at a sendoff event that same week, Aloisi said, “I’m very clear that the Green Line extension really doesn’t make any sense unless it goes to Route 16. I think it has to go to Route 16 and we’ve got to find a way to make it go to Route 16.”

Fully evaluating a “best case” scenario station design during additional environmental analysis would be a great place to start.

Thank you.

Ken Krause

Ken Krause
Medford Green Line Neighborhood Alliance
www.medfordgreenline.org

Attachments:

MGNA DEIR Analysis
MGNA Track Alignment Alternative



MGNA
Medford Green Line Neighborhood Alliance
www.medfordgreenline.org
info@medfordgreenline.org

MGNA Green Line DEIR Analysis

MAIN POINTS

The Draft Environmental Impact Report (DEIR) should NOT be accepted as the Final Environmental Impact Report (FEIR), because the DEIR fails to fulfill the requirements set forth by the Executive Office of Environmental Affairs in its Dec. 1, 2006 MEPA Certificate on the Expanded Environmental Notification Form.

According to the Certificate, in order to be accepted as an FEIR, the DEIR must provide a “reasonably complete and stand-alone description and analysis of the project, project alternatives and environmental impacts, and adequately address mitigation.” Further, the Certificate states that the DEIR should “investigate all feasible methods of avoiding, reducing or minimizing impacts to land.”

The DEIR fails to meet these requirements in numerous ways, most significantly by:

- **Failing to analyze and design the Mystic Valley Parkway (Route 16) station to minimize impacts and maximize the benefits.** In fact, the DEIR presenting what MassDOT describes as a “worst-case scenario” for the station – the only element of the project treated in such a fashion.
- **Failing to fully analyze the impacts of a College Avenue station as the terminus** on the main branch to Medford, which it is proposed to be in Phase I of the project construction.
- **Failing to fully address mitigation measures**, particularly in the Medford Hillside area, which will NOT be served by the Green Line extension if it terminates at College Avenue, but will bear additional burdens of increased vehicular traffic through the neighborhood, as well as construction impacts and effects of a terminus station that would not be felt if Route 16 were the terminus.

Despite being filed 10.5 months after the Dec. 1, 2008 deadline, the DEIR is materially deficient in almost every category.

Therefore, the Secretary of Environmental Affairs should require MassDOT to continue the Environmental Impact analysis in the form of a Final Environmental Impact Report that addresses the many outstanding issues, most importantly the complete analysis of the Mystic Valley Parkway (Route 16) station.

Further, MassDOT should be required to re-evaluate a schedule in which it will construct what the DEIR describes as the Preferred, Full-Build Alternative -- that is, a terminus station at Route 16 with no parking – in one phase by Dec. 31, 2014, in order to achieve the maximum environmental benefits of the project without delay and within the commonwealth’s legal deadline.

SPECIFIC POINTS

SUPPORT FOR MYSTIC VALLEY PARKWAY TERMINUS AND ONE-PHASE CONSTRUCTION BY DEC. 31, 2014

We support the Mystic Valley Parkway (Route 16) terminus station, with no parking, as the Preferred Alternative. The DEIR clearly demonstrates that this alternative provides the maximum benefits from the project in regard to:

- Ridership (70% switching from auto travel)
- Reduction of vehicle miles traveled in the service region
- Air quality improvements
- Service to environmental justice communities.

It also demonstrates the acute need for better transit service in this neighborhood, as the intersection of Route 16 and Boston Avenue, had the second highest daily traffic volume (29,000 vehicles) in the entire project area.

HOWEVER, the station analysis is incomplete and its design is inadequate and inflicts unnecessary environmental impacts. MassDOT officials have publicly acknowledged putting forth the “worst case scenario” for the Route 16 station; this is not acceptable in a document that is required to minimize all negative impacts.

In addition, the Mystic Valley Parkway Station should be built as part of a single phase, otherwise the environmental benefits will be delayed or possibly never realized, as construction of Phase 2 is unlikely, at best.

A one-phase project build to Route 16 also is preferable because:

- By providing the greatest benefits with regard to air quality, mobility, ridership and environmental justice, the Preferred Alternative is the strongest regional project and would be most competitive in vying for federal funding.
- By MassDOT's own estimate, the cost of constructing the final leg of the extension, from College Avenue to Mystic Valley Parkway, would increase by \$50 million by undertaking it in a second phase between 2016-2020.
- Delaying the completion of the project into a second phase would push it outside the scope of the current MEPA and NEPA review process, requiring another complete review, additional costs and further delays. These are unlikely to be undertaken for the benefit of a single station.

SUPPORT FOR ALTERNATIVE DESIGN FOR MYSTIC VALLEY PARKWAY TERMINUS STATION

We applaud MassDOT for designing the stations in a manner that minimizes residential property takings and for not displacing any Medford residents. *HOWEVER*, the same effort has not been made for minimizing commercial property takings, particularly at the Mystic Valley Parkway Station.

We strongly advocate analysis of the Medford Green Line Neighborhood Alliance's alternative design for the Route 16 station, which demonstrates that adjusting the track curvature and platform

orientation would eliminate the need to acquire the commercial properties at 200 and 222 Boston Avenue, or a comparable alternative that accomplishes the same aims. This would reduce the project cost by at least \$15.4 million (the buildings' current assessed values) and preserving nearly \$200,000 in annual property tax revenue for the city of Medford.

MassDOT has stated publicly that it has a similar design that would not require these very large property acquisitions, job/company displacements and relocation costs. This "best-case" scenario for the Route 16 station, with a revised cost estimate, should be presented in a Final EIR.

The Route 16 station in the DEIR also is sorely lacking in pedestrian and bicycle access and accommodations, and is largely oriented for pick-up/drop-off ridership, unlike any of the other stations on the extension.

COLLEGE AVENUE STATION DOES NOT FULFILL THE STATE'S LEGAL OBLIGATION TO PROVIDE SERVICE TO MEDFORD HILLSIDE BY DEC. 31, 2014

We disagree that a terminus station at College Avenue fulfills the state's legal commitment to serve Medford Hillside, as the vast majority of what is generally considered the Hillside area is located from one-half to three-quarters of a mile from where service would terminate. (Extensive documentation from a variety of historic and current sources has been submitted to MassDOT.) Further, the Medford Hillside neighborhood would bear the additional burden of increased motor vehicle traffic destined for a terminus station at College Avenue, and would not receive mitigation measures such as sound barriers beyond the College Avenue station itself, even though increases in noise and vibration will be inflicted as far as Winthrop Street.

COLLEGE AVENUE TERMINUS STATION ENVIRONMENTAL IMPACTS HAVE NOT BEEN EVALUATED

The environmental impacts of a terminus station at College Avenue have not been fully evaluated. A terminus station would have a dramatically different operation and impact on the neighborhood than would a mid-route station; these impacts were not evaluated in the DEIR. The traffic impacts of a College Avenue terminus station also are understated and under-evaluated and require much further study. Finally, constructing the Medford Branch of the extension in two phases would result in unnecessary and undue disruption and other impacts to the College Avenue neighborhood.

CITIZENS OVERWHELMINGLY SUPPORT A ROUTE 16 TERMINUS

There is overwhelming community support for the Route 16 station, with more than 2,500 people signing a petition in its favor, including more than 1,200 from Medford. The Route 16 terminus station would serve nearly 10,000 residents of Medford, Somerville and Arlington living within a half-mile (10-minute) walk, who would not be within walking distance of a College Avenue terminus. Further, multiuse paths are being planned that will lead directly to the Route 16 station, from east and from west, further increasing ridership potential.

PROPOSED MITIGATION LACKS DETAIL, COMMITMENT

The DEIR recommends numerous mitigation measures, but they are often described with caveats such as "to the extent practicable" and "where feasible." There also is a lack of detail in the construction sequencing, which makes no mention of noise barrier installation, and the \$15.8 million estimated to be spent for noise mitigation falls below the MBTA's policy of committing 2% of a project cost to noise mitigation. MEPA should require a final EIR that includes binding commitments to

mitigation as well as additional mitigation measures such as cash payments to affected abutters, and retrofitting the existing commuter rail diesel locomotives with emission-reduction devices. It should commit to providing mitigation such as noise barriers *prior* to construction wherever possible.

MASSDOT HAS FAILED TO TAKE PUBLIC COMMENT AND OPINION INTO ACCOUNT

While MassDOT went through the motions of conducting public outreach and graciously honored meeting requests from citizen interest groups, there is precious little evidence that input from the public was taken to heart, except to support conclusions that they had already reached. In particular,

- 1) Comprehensive research to establish the extent of the area called “Medford Hillside” was neither accepted or rebutted.
- 2) Repeated questions about how the Winthrop Street station stop was dropped from consideration have been met with repeated unsubstantiated claims that community opposition prevented it from being seriously considered. MassDOT needs to document the objections that it considered when making this decision.
- 3) A June 11, 2008 letter to EOT from the State Legislative Delegation (Jehlen, Sciortino, Garballey, Donato) representing Medford and areas adjacent to the Route 16 station seeking analysis of alternative track configurations in the area of a Route 16 terminus went unanswered.
- 4) In May 2009, requests of EOT to participate in an attempt to redesign the trackwork around a Route 16 terminus in a way that reduced land takings were declined by EOT, in particular citing “limited staff availability.”

MassDOT needs an opportunity to complete an FEIR in order to incorporate these public concerns into its plans.

LECHMERE STATION RELOCATION IMPACTS

Midway through the DEIR process, MassDOT was forced to assume the redesign and cost of the relocation of Lechmere Station as part of the Green Line extension project, because a developer was unable to fulfill its commitment to pay for the station relocation into the failed North Point project.

This has added approximately \$111 million to the cost of the project, or roughly the estimated cost of the College Avenue to Route 16 section of the extension. More than anything, this circumstance has forced MassDOT to relegate this final portion of the Green Line extension to Medford into a second phase, to be built sometime between 2016 and 2020, even though the DEIR demonstrates that the Full Build Alternative to Route 16 provides the greatest air quality benefits.

MEPA should require MassDOT to seek alternative funding for the Lechmere Station relocation, as well as redesigning major project elements such as the Route 16 station, to reduce costs in order for the entire project to be built in one phase by Dec. 31, 2014.

CONCLUSION

The new Massachusetts Department of Transportation is committed to make “investments and decisions that strengthen communities, support economic growth and improve public health.” The Green Line extension is the perfect example of a project that will fulfill that mission, but only if it is built in the most environmentally beneficial and cost-effective manner, which is to continue the Environmental Impact Report in a manner that will enable the Commonwealth to construct the main branch to Route 16 in Medford in one phase by Dec. 31, 2014.



MGNA
Medford Green Line Neighborhood Alliance
www.medfordgreenline.org
medfordgreenline@yahoo.com

Proposal for alternative track alignment at the Route 16 terminus station for the Green Line Extension

One of the primary objectives of the Medford Green Line Neighborhood Alliance (MGNA) is to ensure that the Green Line extension is designed, constructed, and ultimately operated in a manner that provides maximum benefit to the city and its residents. Over the last four years, MGNA members have been diligently involved in the process, engaging citizens, researching best practices, collecting data, and providing constructive input to the project team.

We have been heartened that MassDOT has embraced many of our recommendations, including selecting a Route 16 terminus station as its Preferred Alternative for the project; providing for no parking at any of the new Green Line stations, in particular at Route 16, where a 300-car garage was considered; and designing the project so that no residential properties need to be acquired.

However, over the last 18 months, MGNA has expressed concern to MassDOT regarding the designs presented for the Route 16 station, which indicated the likely removal of two commercial buildings to accommodate the Green Line tracks and platform.

The Draft Environmental Impact Report (DEIR) affirmed MassDOT's intention to remove the buildings at 200 and 222 Boston Avenue – to the detriment, in our opinion, of both the project and all stakeholders.

The removal of these buildings would displace numerous private businesses, Tufts University departments and laboratories, and a least 224 employees. It would also result in a decrease of at least \$164,487 in annual property tax revenue to the city of Medford, and add at least \$15.5 million to \$20 million to the project cost.

Consequently, while the Preferred Alternative – with the terminus station at Route 16 – is shown to provide the greatest air quality improvements, ridership gains, traffic reduction, and benefit to environmental justice populations, the negative impacts of the commercial property takings make the station less feasible and have created opposition among Medford government and its taxpayers.

Cognizant of these issues, for the last several months an MGNA working group, using technical information provided by MassDOT, has explored alternative track alignments for a Route 16 station. The goal was to develop an alignment that has smaller property acquisition needs. By adjusting the track curvatures between North Street and Route 16

and changing the angle of the station platform itself, MGNA has developed an alignment that accommodates the Green Line station without the need to remove or substantially alter the buildings at 200 and 222 Boston Avenue.

MGNA's interest in this undertaking is entirely for the benefit of the Green Line Extension and the communities it serves. The members of the working group have volunteered their time, have received no compensation from anyone and do not expect to. Specifically, MassDOT gave us information as we requested it but did not support us in any other way. The manager of some of the threatened structures and tenants housed therein have indicated that they would prefer not to lose the properties to the Green Line Extension; however, they have not provided any material support to the working group in its efforts. Likewise, even though the populations of Medford, Somerville, and Arlington are affected by the prospect of a station at Mystic Valley Parkway, the working group operated independently of any local government.

The Process

In order to understand the MBTA design constraints, the working group began by requesting the *Draft Schematic Design Guidelines – Green Line Extension Project*, which MassDOT provided in April 2009. These guidelines detailed the design characteristics that facilitate the following objectives:

- Safe operation
- Maintainable infrastructure
- Fair treatment of abutters
- Comfortable rides for both Commuter Rail and Green Line passengers

Further, in order to better understand the sensitivities of rail design, the working group also consulted publications of the Transit Cooperative Research Program sponsored by the Federal Transit Administration.

And to supplement our understanding of applicable principles, we referred to materials generously posted at the University of Denver website by Dr. James B. Calvert, emeritus engineering faculty member. Dr. Calvert's explanations made it possible for us to apply the constraints of the *Schematic Guidelines* using the tools that we already owned without incurring prohibitive expense.

Using these materials, the MGNA working group identified an alternative track alignment between North Street and Mystic Valley Parkway that eliminates the need to take the commercial buildings at 200 and 222 Boston Avenue, while observing the constraints of the *Schematic Guidelines*.

Essentially, in our proposed alignment, the constellation of tracks (two Commuter Rail, two Green Line) is relocated closer to the northeast boundary of the existing right-of-way, rather than being approximately centered in the right-of-way, as the trackwork is situated in other stretches of the extension corridor. This avoids the excessive track

proximity to the east corner of 200 Boston Avenue and to the northeast walls of 200 Boston Avenue and 222 Boston Avenue.

More specifically, our alternative has these characteristics:

1. It is wholly confined within the existing railroad right-of-way except for a sliver taking from a commercial parking lot (Medford), one vacant commercial lot (Somerville) and one commercial building and lot (Somerville).
2. It uses curve radii well within the *Schematic Guidelines*' specifications, typically double the minimum and sometimes triple the minimum, thereby improving passenger comfort, reducing risk of excessive noise and decreasing the torque on rolling stock that arises in approaches to banked trackwork.
3. Where conflicting constraints appear, it uses the more stringent specification, taking a conservative approach.
4. It achieves all spiral and tangent track goals including a tangent 450-foot platform and tangent platform approach, in order to avoid wheel squeal.
5. It eliminates the need to place trackwork on the very locations where the northeast walls of 200 and 222 Boston Avenue stand today.

A fully detailed description of the alignment is provided below, and conceptual drawings are attached.

Conclusion

MGNA put forward our alternative alignment for the tracks between North Street and Mystic Valley Parkway, and the reorientation of the station platform, in hopes that it can contribute to a design for the Route 16 terminus that does not necessitate taking the commercial properties at 200 and 222 Boston Avenue in Medford. There are doubtless other solutions that qualified engineering personnel could discover to achieve the same objectives, and we ask that one of these be included in the Final EIR/EA for the Green Line extension project, rather than the worst-case scenario that is presented in the DEIR/EA.

References

- [1] *Draft Schematic Design Guidelines – Green Line Extension Project* – April 2009 – VHB/Vanasse Hangen Brustlin, Inc., *et al.*
- [2] *Track Design Handbook for Light Rail Transit* – 1999 – Transit Cooperative Research Program Report 57 – sponsored by the Federal Transit Administration
- [3] *Beyond Lechmere Northwest Corridor Study* – August 2005 – VHB/Vanasse Hangen Brustlin, Inc., *et al.*
- [4] *Degree of Curvature* – James B. Calvert, University of Denver – last revised 20-Jun-2004

Details

Relocation of Commuter Rail tracks to shift them away from the threatened properties:

- 900-foot compound curve (“S” curve) comprising two 200-foot circular curves with spiral transitions separated in the center with a 100-foot tangent.
- Heading south, the compound curve begins at the south bridgehead of the Mystic Valley Parkway Bridge and completes approximately even with the east corner of 200 Boston Avenue.
- Shifts tracks 22 feet to the north-east (away from 200 Boston Avenue and 222 Boston Avenue) instead 13 feet, which the DEIR alignment achieves.
- Conforms to design standards as follows:
 - Limits circular radius to 7640 feet (corresponding to 0°45'00” degree of curvature) compared to a preferred minimum of 4297 feet (corresponding to 1°20'00” degree of curvature) – [1] § 1.2.9.1 *Commuter Rail Geometric Design*
 - With 0°45'00” curves, meets 60 miles per hour design speed with $\frac{1}{2}$ inch superelevation – [2] extrapolation from *Table 3.2.2b Desired Superelevation and Minimum Spiral Curve Length (English Units)*
 - Includes four 100-foot spiral transitions (into and out of each of the two opposed circular curves) – [1] § 1.2.9.1 *Commuter Rail Geometric Design*
 - Includes 100 foot tangent track at spiral reversal – [1] § 1.2.9.1 *Commuter Rail Geometric Design*
 - Minimum clearance from right-of-way property line to centerline of closest track is 12½ feet vs. *Guidelines*’ 8½ feet minimum and 10 feet preferred clearance to retaining wall – [1] *Figure 1-8 Typical Section*
 - Centerline clearances between adjacent tracks on tangents is 13 feet (greater on curves) as per *Guidelines* – [1] *Figure 1-8 Typical Section*
- Not shown in this drawing, between North Street and Winthrop Street, additional curved trackwork returns the track constellation to an alignment roughly centered in the railroad right-of-way, the position it occupies for most of the extension corridor.

Placement of Green Line tracks to clear the affected preexisting structures:

- 400-foot simple curve comprising one circular curve with spiral transitions
- Heading north, the outbound track curve begins 125 feet north of North Street bridge; inbound track curve begins just south of North Street bridge
- Adheres to design standards as follows:
 - Minimum clearance from adjacent pre-existing structures at 200 Boston Avenue and 222 Boston Avenue to centerline of closest track is 13½ feet vs. *Guidelines*’ 8 feet preferred and 6½ feet allowed with niches – [1] § 1.2.9.2 *Light Rail Geometric Design*, [1] *Figure 1-8 Typical Section*
 - Includes a single 200-foot circular curve with minimum radius of 3274.3 feet (corresponding to 1°45'00” degree of curvature) compared to minimum preferred 1000 feet (corresponding to 5°43'00” degree of curvature) – [1] § 1.2.9.2 *Light Rail Geometric Design*

- Includes two 100-foot spiral transitions (into and out of circular curve) – [1] § 1.2.9.2 *Light Rail Geometric Design*
- Includes the 450-foot platform required for terminal stations – [1] § 1.2.11 *Table 1-5 Station Requirements*
- Provides a 20 foot wide platform, consistent with the DEIR (this dimension is unspecified in [1] without ridership forecasts – see [1] § 1.2.11.3 *Access*)
- An Area of Refuge (point of safety) is located at the south end of the platform – [1] § 1.2.11.3 *Access*
- Provides a tangent-track (0°00'00”) platform even though curves as tight as 2°00'00” are allowed – [1] § 1.2.9.2 *Light Rail Stations*
- Includes 100-foot tangent track approaching platform – [1] § 1.2.9.2 *Light Rail Stations*
- Centerline clearances between adjacent Green Line tracks on tangents is 13 feet, consistent with preferred spacing (although 12-foot spacing is allowed) – [1] § 1.2.9.2 *Light Rail Geometric Design Minimum distance between centerline of tracks*
- Not shown in this drawing, between North Street and Winthrop Street, additional curved trackwork returns the track constellation to an alignment roughly centered in the railroad right-of-way, the position it occupies for most of the extension corridor.

Contact Information

For more information, please contact

John Roland Elliott, MGNA Working Group Principal
johnrolandelliott@comcast.net
617-905-8675 (m)

Ken Krause, MGNA Working Group Participant
kenneth.krause@comcast.net
781-874-0920 (w)

DEIR: Analysis and Response



Route 16 Station Area - Existing Land Use

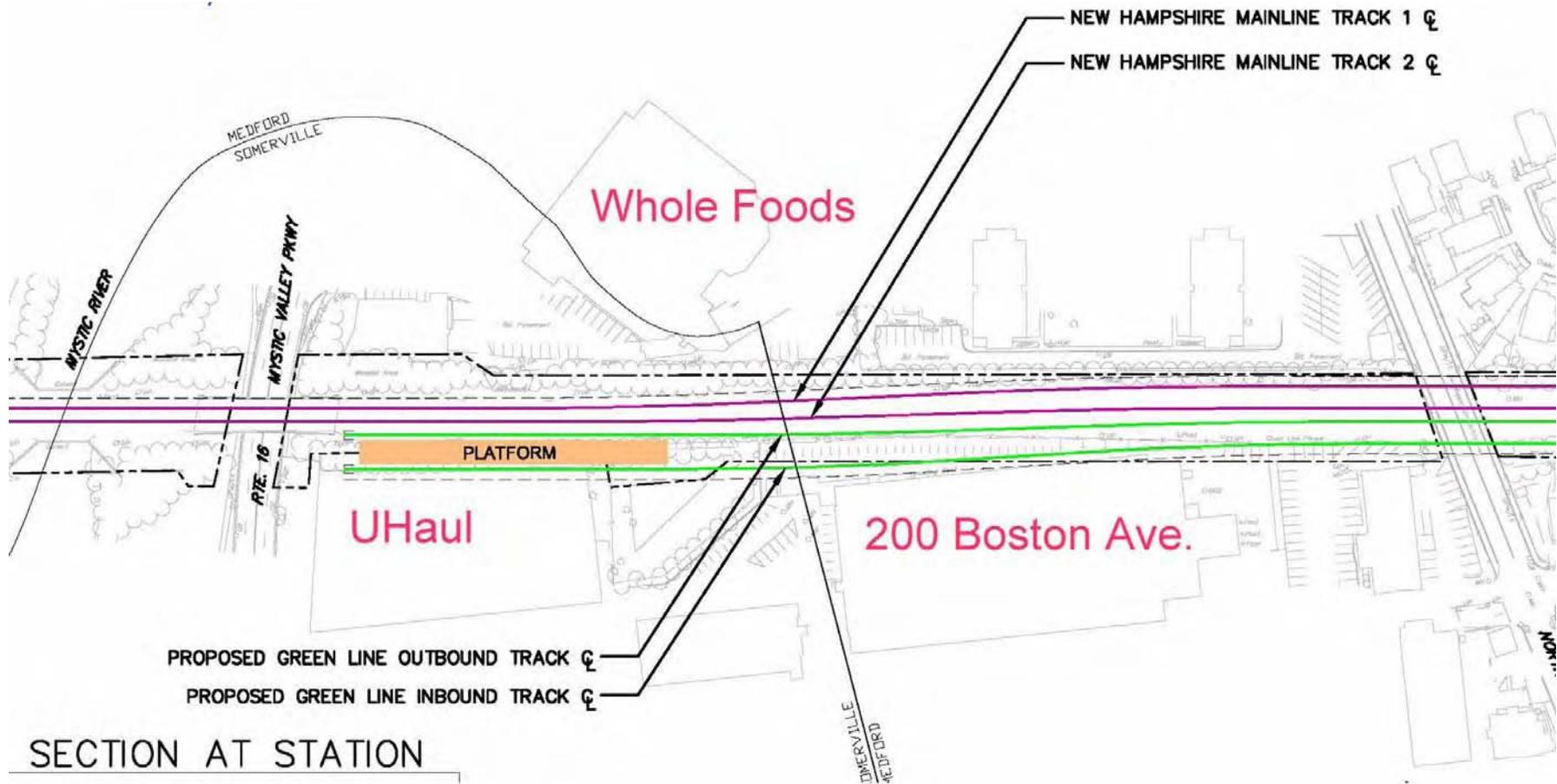


DEIR: Analysis and Response



EOT Design 1,
Feb. 2008

- No conflict with office buildings or North Street bridge
- Commuter rail tracks shown shifted east; 225-foot platform



DEIR: Environmental Impact



In Appendix B of the DEIR, the EOT states:

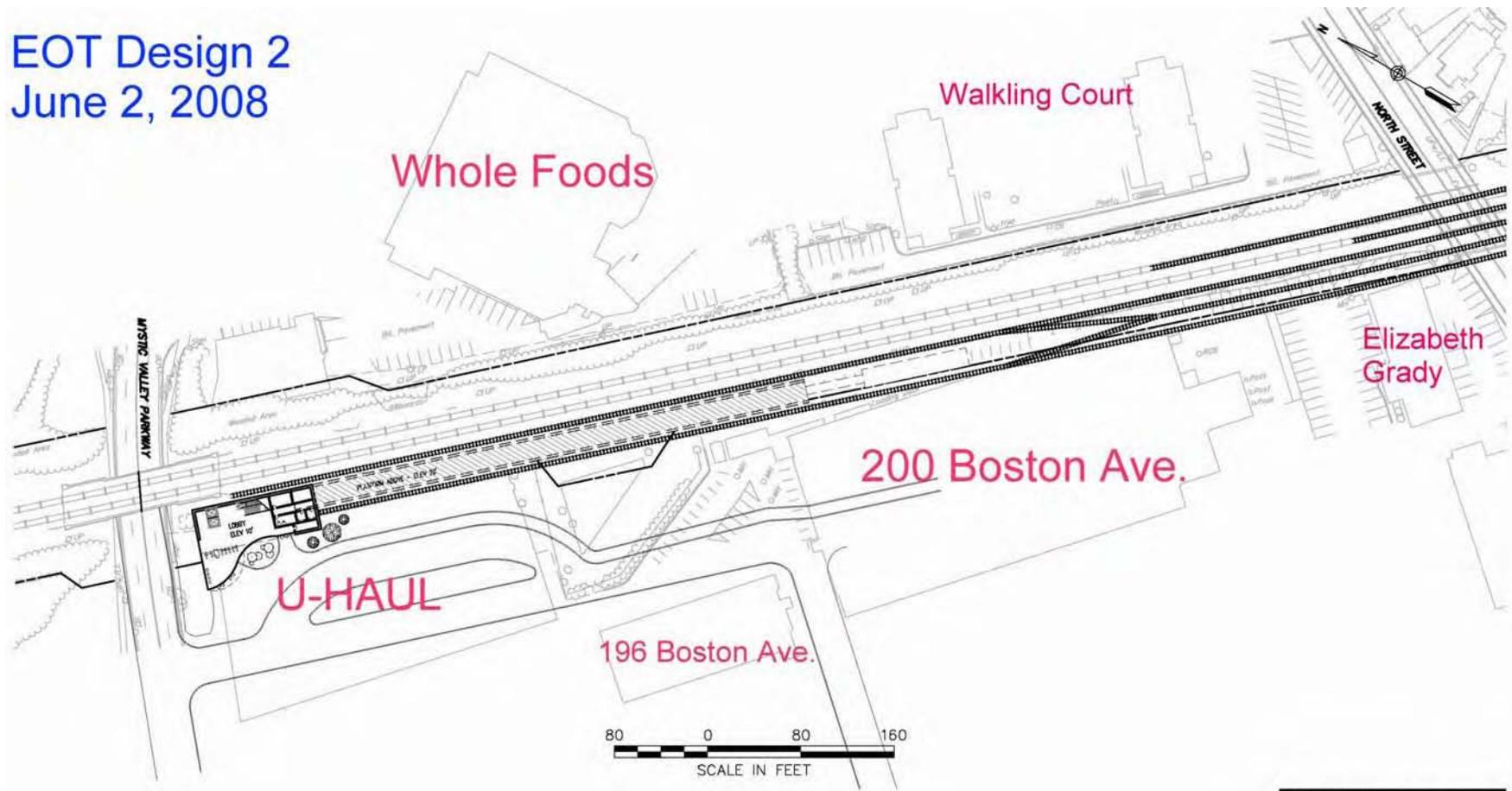
“In February of 2008, a series of public workshops were conducted in the neighborhoods to discuss the proposed station areas and to obtain feedback from stakeholders on the various concepts developed.

“Based on previous work and the feedback obtained at these workshops, the **station concepts for Gilman Square and Mystic Valley Parkway / Route 16 were generally accepted by the public and local officials and did not require additional evaluation.**”

DEIR: Analysis and Response



EOT Design 2
June 2, 2008



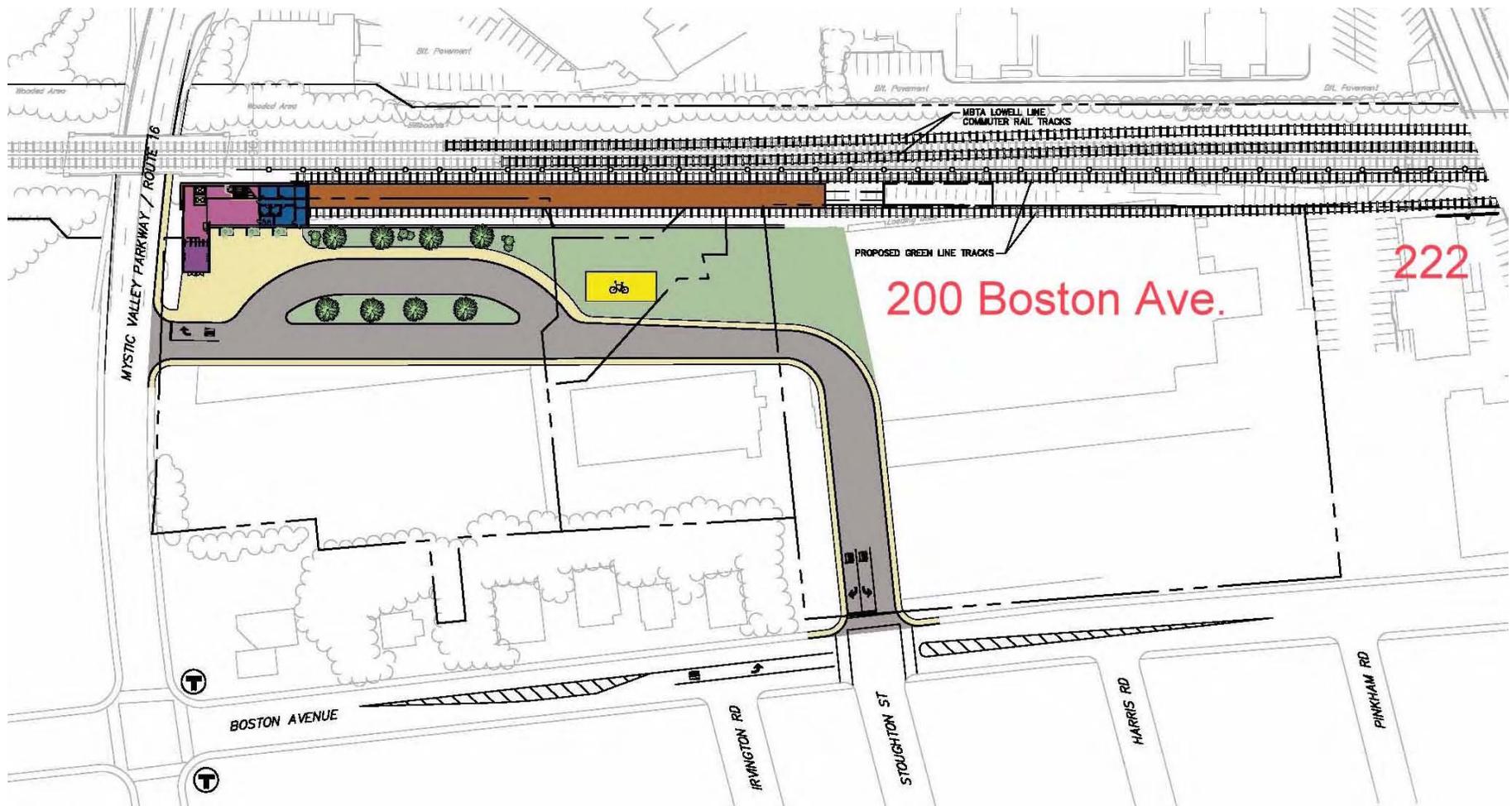
- Third Green Line track added; conflicts shown with office buildings and bridge
- Commuter rail tracks returned to existing position, platform lengthened to 450 ft.

DEIR: Analysis and Response



EOT Design 3
March/Oct. 2009

- Third Green Line track removed
- Commuter rail tracks again shifted east, but not Green Line tracks, which also have excessive spacing in between them

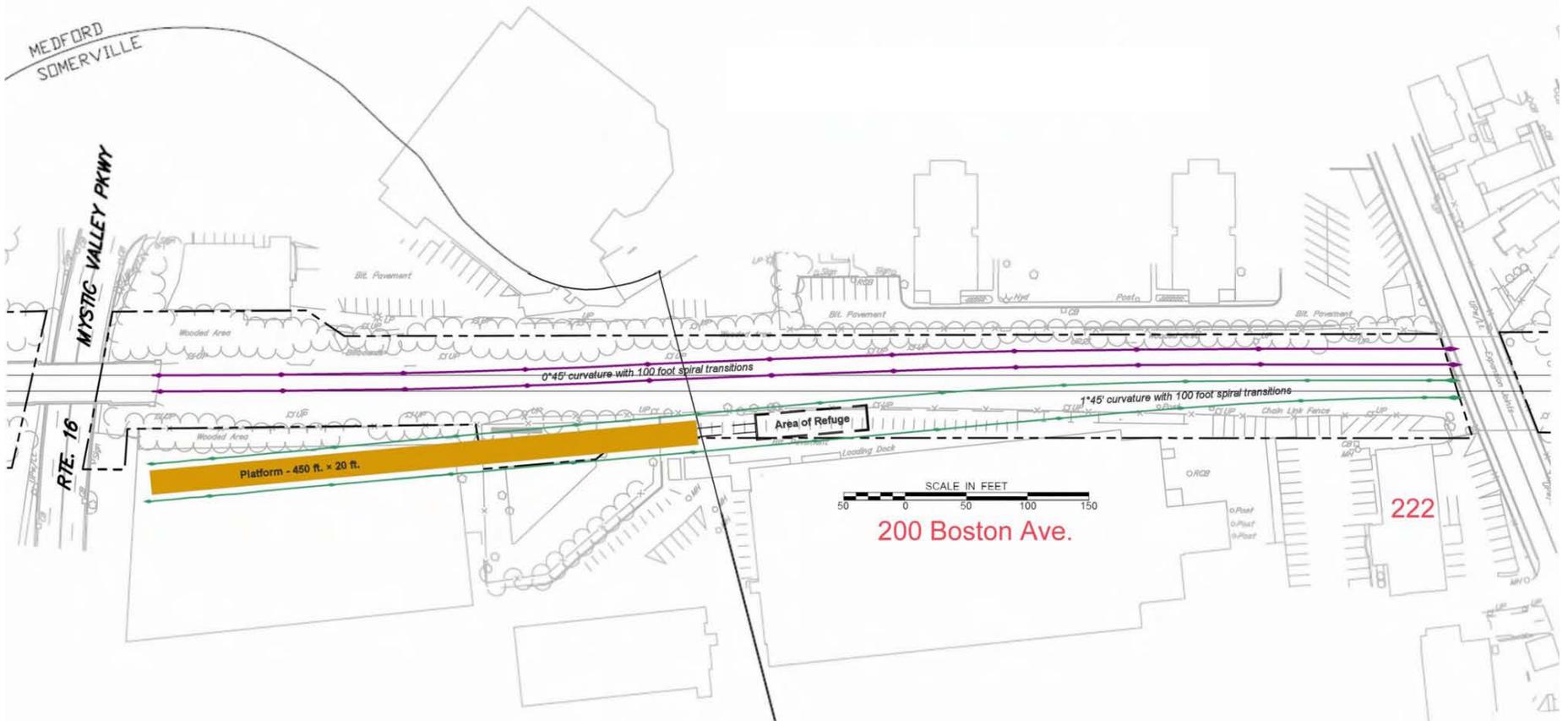


DEIR: Analysis and Response



MGNA Design Alternative November 2009

- Commuter rail tracks shifted east, within right-of-way
- Green Line tracks gently curved, within EOT/FTA guidelines
- Platform orientation changed; no conflicts with office buildings or need to acquire them to accommodate station



DEIR: Analysis and Response



MGNA Route 16 Alternative Station Design Advantages

- Eliminates need to acquire 200 and 222 Boston Avenue properties, preserving businesses
- Preserves \$182,000 in annual property tax revenue to Medford, which is likely to greatly increase with the advent of Green Line service, which will raise the buildings' assessed values
- Reduces project cost by at least \$15.4 million (buildings' current assessed values)
- Saves cost of relocating displaced companies and employees