

It is the goal of this plan to mitigate the impacts of the Northland Newton Development, to make the best possible use of this 22 acre site and to allow a truly great project to thrive in the context of significant traffic mitigation through a combination of:

- *A first of its kind shuttle program*
- *Public improvements in the Needham Street Redesign*
- *Programmatic adjustments to reduce the impact of retail space*
- *Mixed uses to keep residents and workers on site*
- *Major enhancements of biking and walking facilities and limitations on parking*
- *Incentives and options for car-free living*
- *Aggressive traffic monitoring and reporting*

SUMMARY OF TDM PROVISIONS

The purpose of this Summary is to review traffic demand management at the Northland Newton Development holistically from program to design to operations. Northland's goal is to provide a development which effectively addresses traffic generation in a forward looking, multi-faceted and flexible program. This Summary recognizes that construction of the development will commence in 2-3 years and the buildout will take perhaps 5 years after that. It would be an error to predict all the changes in public or private transportation on Needham Street which may occur between now and 2027, but Northland believes it is significant to set forth its vision, its commitment and the metrics by which success will be measured.

Northland's commitment for TDM measures offers the following:

- (i) Clear goals for achieving success in reducing trip generation
- (ii) Specific TDM measures to reduce trip generation in order to meet the stated goals
- (iii) Specific metrics to measure progress; and
- (iv) Scalability of the TDM program and opportunities for incremental changes to the program to accommodate changes over time.

Positive Impact of the Revised Development Program

Since the original VHB TIAS was submitted in October 2018 the program for the project has been dramatically altered as to traffic generation by the elimination of 70,000 s.f. of retail space and 22 dwelling units. For clarity – the reduction in retail spaces is essentially equivalent to removal of the Marshall’s Plaza in its entirety. The resulting change in trip generation is expected to be:

Weekday morning peak	-19%
Weekday afternoon peak	-56%
Saturday midday peak	-55%

The reduction in retail space as suggested by the City’s peer review consultant has improved the project planning and as a by-product has led to a significant decrease in trip generation.

Proposed TDM Measures

Northland’s proposed TDM program includes the following measures:

1. Car Free Living Incentives

Within the project Northland is striving to provide every available option to lead to either car-free living or multiple options for alternatives to car use.

The project will contain incentives for car-free living including:

- Separate (unbundled) charges for parking spaces except for affordable units;
- Alternative transit modes – see below – including pedestrian enhancements, bicycle routes, shuttle routes as described herein
- Onsite commercial areas – jobs, retail, restaurants

2. Shuttle

Northland will institute a first of its kind shuttle program which will provide four routes of shuttles being:

- Route 1 Newton Circulator
- Route 2 Newton Highlands shuttle
- Route 3 Cambridge Express
- Route 4 Boston Express

Northland intends to commence shuttle operations at the granting of a certificate of occupancy for 400 units. Operating hours of the shuttles are initially established to provide service primarily during commuting hours, and each of the routes is scalable, generally by hours of operation, but also by connections to other shuttles or transit modes. The Newton Highlands service is expected to run on an approximately 20 minute schedule during peak hours.

Northland notes that this shuttle system is of unprecedented scope and scale within our experience. Consistent with the variables cited above as to construction, occupancy, uses mix and future technology, the shuttle system will be scaled to an appropriate level consistent with demand. The upside scaling of the shuttle system is unlimited, as the shuttle may connect to other regional resources such as Founders Park and may intersect with the provision of services to other riders. Northland anticipates that in the next years the shuttles to Needham and Wells Ave. will develop and coordinate to provide improved access for workers making a reverse commute. We expect reverse commuting to be a major public benefit of Northland's shuttle, but we note that reverse commuting will generally not be counted or credited as a reduction in traffic generation from the project.

3. Pedestrian Improvements

Enhancement of the pedestrian experience through and adjacent to the Project is a method of reducing vehicle trips. Needham Street today provides a better pedestrian experience now than it did some years ago, and it will be significantly enhanced by the 2020 Needham Street Redesign Project, while the ambiance within the Project itself will be very pedestrian friendly. Pedestrian enhancements at the perimeter will include:

- Sidewalk improvements along Needham Street as part of the Project

- Signalized crosswalk at Charlemont Street to allow pedestrian access to the East side of Needham Street
- Pedestrian access down Charlemont Street to a new connection to Christina Street
- Removal of the Greenway fence and enhanced access to the Greenway

Within the Project pedestrian-friendly elements to encourage walkability include:

- Wayfinding signage throughout the Project for pedestrian routes
- Slow streets with raised tables to reduce traffic speed
- Seating areas in pocket parks and along sidewalks throughout

In addition, the Needham Street Redesign project and the related Oak/Christina Street project to be implemented starting in 2019-2020 will:

- Update signal timing for pedestrians throughout the corridor
- Add 7 additional crosswalks in the Needham Street/Highland Ave. corridor
- Reconstruct sidewalks

4. Bicycle Accommodations

Accommodations for bicycles will be built into the Project including:

- 1100 secure bicycle parking spaces are planned in the Project, spread among the residential, office and retail/restaurant spaces
- Provision at the Mobility Hub and the other locations within the Project for LimeBikes or any similar successor program
- Bicycle repair stations with air pumps
- Availability of showers for office tenants.
- Enhanced access to the Greenway and Upper Falls
- Wayfinding signage throughout the project for bicycle and shared routes

In addition, the Needham Street Redesign project and the related Oak/Christina Street project to be implemented starting in 2019-2020 will:

- Introduce raised bike lanes throughout the corridor and including over the Charles River bridge
- Provide new traffic signals at Winchester Street at Route 9 WB and EB in addition to the new traffic signal at Charlemont Street.

5. Mobility Hub

Northland intends to construct a Mobility Hub of at the front entrance to the Project. The Mobility Hub will provide both a TDM program and a physical presence allowing for:

- High profile transit hub at the front entrance
- Transit and shuttle waiting room adjacent to the parking area
- Rest rooms
- Message Boards – electronic information boards such as, for example, a “Soofa” sign, digital and static signage, maps, information boards, T schedules; real-time transit information
- Adjacent pick-up and drop-off for shuttles
- Café space
- Designated traffic coordinator and staffing to provide TDM coordination

6. Car Sharing

Northland will seek to have initially 4 Zip-Car or equivalent car sharing vehicles in a defined area at the Project when fully constructed, scaled appropriately for the construction/phasing period. The car sharing vehicles will be in designated parking areas. Car sharing will be monitored to confirm that cars are generally available to support a car-free lifestyle. Wayfinding signage throughout the development and at the car sharing services locations will facilitate use of the vehicles.

7. Alternate Transportation Incentives

To induce greater use of alternate transportation toward the trip reduction goal, financial incentives will be offered to residents. Northland will also work with office and retail employers on-site. The incentives will include a combination of the following items:

- Parking limitations for commercial tenants
- Subsidized T-Passes for residents or employees without cars
- Shuttle discount incentives to induce ridership

8. Program Coordination

A transportation management coordinator will be designated to manage the implementation of the TDM measures, vendor management, customer relations, and data collection. The transportation management coordinator will undertake a marketing program to create awareness and generate interest in the availability of alternative transit options and incentives. Prominent wayfinding signage will be installed to identify the mobility hub and access points for alternative transit resources.

Alternate Transportation Programming

The Mobility Hub and the transportation coordinator can also provide scalable programs for encouraging multi-passenger vehicle trips on the one hand and discouraging car ownership on the other.

Project Use Mix

As a mixed use center the Project's mix of uses is intended and expected to reduce aggregate traffic demand through providing the mix of housing, jobs, services and transit on site. The Project itself is a demand management technique. The visits from office workers to the restaurants or from residents to shops are referred to as "internal capture trips" which are provided a projected reduction in the ITE Trip Generation Handbook.

In addition, the availability of services adjacent to the Project will also reduce traffic trips. For example across the street from the Project is the Bright Horizons day care center, where we anticipate some residents and some office employees will obtain child care by walking across the street. The Project residences could be attractive to workers at the office building at 233 Needham Street, and the enhanced pedestrian amenities from the Needham Street redesign will mean that for purposes of the mix

the Project area is greater than the Project itself. These uses are not internal to the Project but are proximate and serve the same function as “internal capture trips”.

Parking

Many of the TDM strategies are designed to reduce not necessarily trips but parking. Northland intends to charge separately for residential parking except for residents of affordable units who are entitled to a space within their rent. The price of parking will be set to keep the demand down to meet the supply.

Northland has presented a Shared Parking Analysis and a Parking Management Plan indicating that the parking in the garages is expected to be sufficient other than at peak December shopping dates for which provisions are made.

Scalability/Adjustments/Review

This Summary describes steps which are intended to be scaled to the construction schedule of the Project. During construction and rent-up the interim goals of implementation are:

- Early opening and operation of the Mobility Hub and information services;
- Coordination with employers for employee transit and parking
- Coordination with the Newton Needham Chamber and N-Squared Innovation District
- Coordination with area businesses including Founders Park, Wells Ave. and Needham Street
- Providing programmed transit services for residents and employees

This Summary is written in 2019, and Northland anticipates the Project to be built out and occupied by about 2025. The final TDM Plan when drafted and the shuttle services in particular are designed as “stand-alone” services which Northland is prepared to provide. However, Northland is aware that the environment is not static, that regional growth, economic growth or contraction, regulatory changes or disruptive technologies may affect underlying facts or create new or additional demand management strategies or, on the other hand, make strategies in this

Summary impractical. Both Founders Park in Needham and parts of Wells Avenue in Newton have zoning requirements to participate in a transportation management association. It is clear that these properties will evolve over time, that coordination among the properties is to the advantage of all and that this plan and the shuttle services provided should be and will be adjusted.

The final TDM Plan should be subject to revisions at not less than three points in time:

- 1) Prior to the commencement of construction Northland will review prepare the final TDM Plan to reflect elements for which facts or programs may have changed;
- 2) Prior to the commencement of construction of the final buildings the Project Northland will review the TDM Plan to reflect experience to date and to adjust elements for which facts or programs may have changed.
- 3) Upon review of the metrics provided for understanding the traffic volumes, shuttle programs and overall TDM effectiveness the program will without doubt be adjusted with successful programs enhanced and less successful programs revised. Northland expects a dynamic management program over a long period of time

Metrics/Post Occupancy Review

Trip Generation Reduction Goal Ultimately Northland views the primary metric of success to be trip generation. As noted above the adjustment of the project program by elimination of 70,000 s.f of retail leads to a dramatic reduction in projected traffic, but further goals are attainable. The VHB revised TIA of March 28, 2019 projects net new traffic using the existing and “robust” mode splits as:

	Existing Mode Split	Robust Shuttle
Weekday a.m. peak	218	119
Weekday p.m. peak	196	119
Saturday midday peak	268	209

These periods can be measured and progress tracked. Northland proposes establishing a target to reduce traffic generation below the projection for existing mode split with an aspiration to achieve the goal of traffic generation reflected in the “robust shuttle” mode split. The implementation of various elements of the TDM plan together with the program changes already implemented will provide a very substantial reduction in traffic generation from the project as filed.

Data Collection The collection of data for the alternate transit utilization is essential to track success against the stated trip generation reduction goals. As part of the TDM plan, data will be collected and analyzed on an annual basis to determine the ongoing success of each of the proposed measures in meeting the plan’s goals. Not all will be, and some may be successful at different times and at different points in the life of the development . The creation of alternatives, the monitoring of choices and adaptability will be critical to overall success. These metrics will be the basis for making adjustments in the program elements to improve overall performance.

Annual data collection and analysis will include the following:

- Shuttle ridership on each route
- T-Passes subsidized
- Shuttle discounts offered
- Shared bike utilization on site
- Zip Car Usage on site
- Residential parking passes outstanding
- Office parking usage
- User survey response information

Post Occupancy TDM Reporting One year after issuance of a final certificate of occupancy for the Project Northland will conduct a post occupancy traffic study to document and assess (i) the actual traffic characteristics, volumes, and operating conditions of the Project including safety and crash results; (ii) evaluate the success and refine the elements of the TDM Plan including parking utilization and residential and commercial tenant mode shares; and (iii) assess traffic volumes and operating conditions at the Project site. Traffic counts will be performed under average-month conditions

while public schools are in regular session. The results will be analyzed to review the actual traffic and parking characteristics of the Project and to assess traffic volumes and operating conditions at the Project and the results of the traffic study and review will be provided to the Director of Planning and Development, the Director of the Transportation Division of Public Works for review.

If the results of the traffic study indicate the actual measured traffic volumes associated with the Project as constructed and do not achieve the desired metrics as measured at the Needham Street driveways serving the Project, other than through matters changing the “no-build” condition through unanticipated additional development, then Northland shall meet with the Director of Planning and Development Department and the Director of Transportation for the Department of Public Works to propose corrective measures to the TDM in order to increase use of public transportation, or other alternatives to automobile travel or other methods to achieve the desired metrics.