Acknowledgements

This project has been made possible with funds from the New York State Association of MPOs. This report was funded in part through grant[s] from the Federal Highway Administration (and Federal Transit Administration), U.S. Department of Transportation. The views and opinions of the authors expressed herein do not necessarily state or reflect those of the U.S. Department of Transportation. This report was prepared by Regional Plan Association (RPA).

Project Staff

**Regional Plan Association**
Robert Lane, Director of Design Program
Jeffrey Zupan, Senior Fellow, Transportation
David Kooris, Vice President
Paolo Ikezoe, Research Associate

**Buckhurst Fish & Jacquemart, Inc.**
Georges Jacquemart, Principal
Ritu Mohanty, Senior Urban Designer

**New York Metropolitan Transportation Council**
Larry McAuliffe, TSD Project Manager

**New York State Association of MPOs**

**TSD Steering Committee**

Kealy Salomon, Transportation Program Administrator, Poughkeepsie-Dutchess County Transportation Council (PDCTC)
Hal Morse, Executive Director, Greater Buffalo Niagara Regional Transportation Council (GBNRTC)
Jim Arey, Senior Planner, Elmira-Chemung Transportation Council (ECTC)
Ron Epstein, Director, NYSDOT Transit Bureau
Jim Davis, NYSDOT Transit Bureau
Charles Moore, NYSDOT Transit Bureau
Richard Landerkin, Director of Planning, Centro

This report was designed by Paolo Ikezoe, Research Associate, and Jeff Ferzoco, Creative and Technology Director.

Questions can be directed to Robert Lane or Paolo Ikezoe of Regional Plan Association. A copy of this report can be found on RPA’s website: www.rpa.org
### Table of Contents

**Executive Summary** 4

**Part I: Existing Conditions**
- Overview 5

**Part II: Travel Benefits**
- What are the benefits of new service? 7
- The Survey 8

**Part III: Transit Alternatives**
- Light Rail and Bus Rapid Transit 11
- Growth at the University of Buffalo 14
- The Workshop 16
- Photo Simulation of Transit Alternatives 18

**Part IV: Conclusions & Next Steps** 22
Executive Summary

In the fall of 2007, Buffalo was selected to be one of the New York State Metropolitan Planning Organizations’ four Transit Supportive Development case studies. The case studies, each from a different corner of New York State, present varying challenges and opportunities that focus on centering future development around new and existing transit service.

The Buffalo case study addressed the question of how to best link two campuses of the University at Buffalo to each other, as well as to surrounding neighborhoods and downtown Buffalo. The university expects to grow by over 40% in the coming decades, and predicts that some 8,000 daily bus riders can be expected in the corridor between the South Campus, where the existing Metro light rail terminates, and the North Campus.

Preliminary analysis included data and on-the-ground research into current local ridership characteristics and travel demand as well as a stakeholder workshop, in which photo-simulations of various transit modes were presented for discussion.

The Metro currently runs at-surface in downtown Buffalo and in a tunnel in outlying areas. Several studies have looked at extending the line further north.

The primary analysis revolved around what specific mode of transit would be most effective at accomplishing the goals laid out by the client, the University at Buffalo. The two modes under consideration were:

1. **Light Rail Transit (LRT)**
   Several LRT alternatives were considered, from a line running in a deep tunnel to a surface line, along several alignments. Though travel time and reduction of transfers varied among the various alternatives, the benefits of LRT in this case included lower environmental impacts, lower long-term operating costs, and greater potential to spur Transit-Supportive Development along the corridor.

2. **Bus Rapid Transit (BRT)**
   Often considered a cheaper alternative to LRT, Bus Rapid Transit provides many of the benefits of rail at lower initial capital and construction cost.

Also presented in this report are photo simulations of various types of neighborhood streets in the study area with examples of LRT and BRT running along them. These were shown to stakeholders at a workshop held in February of 2009.

After in-depth discussion of existing conditions, future travel demand projections, and analysis of potential modes, this report makes several recommendations as to the benefits and drawbacks of each potential mode.
Existing Transit Service

Today, the Niagara Frontier Transit Authority (NFTA) operates a light rail line, known locally as the Metro, between downtown Buffalo and the South Campus of the University at Buffalo (UB). It makes 14 stops, including one at the Downtown Campus, which is expected to be the subject of expansion in the next dozen years. Currently, those traveling between the North and South campuses, including students, faculty and other university employees, make heavy use of the UB Stampede, a bus service operated under contract to the University. For travel between the North Campus and the Downtown Campus, a combination of UB Stampede and the Metro or a UB shuttle can be used.

NFTA also operates an extensive bus system. Nine routes converge on the Metro station at the South Campus, located at the northern edge of the Buffalo city limits. Two of these routes extend out in the general direction of the University, with one stopping on the North Campus.

Planning for Future Transit Service

Many studies have been done, most centering on the idea of extending the Metro line to the north through the Town of Amherst all the way to the North Campus of the University located there. To date, the absence of funding and community opposition to the extension have prevented action. The University’s ambitious plans for expansion have given new impetus to finding a transit expansion plan that can provide large travel benefits, meet the needs of the University and be sensitive to residents’ concerns. Whatever decision is to be made about the transit technology between the two campuses will have to be consistent with the plans to expand and redesign the North Campus. The location of the line and, especially, any station or stations, would have to be compatible with the plans of the North Campus now under study.

This report explores the travel benefits of alternative transit expansion concepts, their advantages and disadvantages and the implications of the enormous growth projected for the University, especially for the Downtown Campus.

In addition to the markets associated with the three University campuses, the extension would have the potential to serve other markets in the larger metropolitan region. This would include trips to and from neighborhood locations along the light rail line, not only to and from the Downtown area, but to areas near the other stations along the line. It would also include trips that might originate from communities farther north, which would benefit because the line would be extended closer to the points of origin. These trips are accounted for in this analysis only if they were intercepted by the survey done at University Metro station. This intercept survey is discussed in the next section of this report.

Transit-Supportive Development at the University at Buffalo

The University at Buffalo’s Comprehensive Physical Plan embraces the concept of Transit-Supportive Development (TSD) as a way to achieve a sustainable build out of the university that minimizes traffic and related environmental impacts and reduces the need for costly and unsightly parking lots and structures. In addition to reinforcing academic programs in campus centers, the plan targets areas well-served by public transit for residential and commercial mixed-use development.

On North Campus, the bulk of the proposed development is concentrated in and around the academic core and along the Ellicott Way transit/bike/walk corridor (see rendering below). On South Campus, the plan points to the underdeveloped commercial properties across from Main Circle as promising locations for TSD directly opposite the campus. As shown in a plan rendering, perhaps the most likely development would be a building with retail uses on the ground floor and apartments on the floors above. Shoppers and residents of the complex would benefit from proximity to the NFTA Metro Rail University Station and bus loop, as well as community destinations in the University Heights neighborhood and on South Campus. The development of an academic health center at the Buffalo Niagara Medical Campus in downtown Buffalo, an area well-served by public transit, is a large-scale action that is highly supportive of transit. The UB plan also envisions the development of student and faculty housing in close proximity to the campus on sites that have ready access to transit, particularly those close to MetroRail stations.

Potential TSD at UB North Campus
Figure 1: Inter-Campus Corridor

Source: Google Map

Key

- Red: Possible Routes
- Blue: Existing Metro

North Campus

South Campus

Figure 1: Inter-Campus Corridor

Source: Google Map
What are the travel benefits of new service?

The potential beneficiaries of new transit services between the South and North campuses of the University at Buffalo fall into a number of categories:

- those who would use the new service to travel between the North Campus and points south of Metro’s University station on the South Campus, potentially eliminating a transfer at that station, including not only travel associated with the University but to and from other locations to the north.

- those who would travel between points north of the South Campus (including the North Campus) and the South Campus.

The new services contemplated in the corridor between the two campuses fall into two categories – either as continuations of the Metro light rail line from the South Campus to the North Campus, avoiding a transfer for those traveling from points south of the South Campus to points north, or as separate services beginning at the South Campus Metro station. Within these two categories is travel associated with the University and travel not related to University activities.

This analysis first discusses the benefits that would accrue to those who, as a consequence of having an extension of the light rail line, would no longer have to transfer at the University station. Second, this analysis discusses those who would see an improved service from the extension even should they not be traveling to points to the south on the Metro.

It must be emphasized that this analysis is based on limited data and a series of assumptions that, while reasonable, are no substitute for a fuller analysis using the origin-destination surveys done by the Greater Buffalo-Niagara Regional Transportation Council, supplemented by surveys done by the University at Buffalo. The intent of this analysis is to serve as a guide to focus decision-making about transit alternatives in the corridor and to offer the University and other key stakeholders a way of examining these alternatives rationally.

**Table 1: Movements by Origin and Destination - Counts at University Station**

```
<table>
<thead>
<tr>
<th></th>
<th>Morning 7:30 to 10:30</th>
<th>Afternoon 3:00 to 6:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Campus</td>
<td>Stampede</td>
</tr>
<tr>
<td>O  Stampede</td>
<td>228</td>
<td>0</td>
</tr>
<tr>
<td>r  Kiss &amp; Ride</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>i  UB Parking</td>
<td>NA</td>
<td>3</td>
</tr>
<tr>
<td>g  Metro</td>
<td>123</td>
<td>49</td>
</tr>
<tr>
<td>i  NFTA Bus</td>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>n  Neighborhood</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Park &amp; Ride</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>404</td>
<td>368</td>
</tr>
</tbody>
</table>
```

Source: Counts undertaken by UB interns in late October and November, 2008, on Wednesdays and Thursdays, all in the area surrounding the University Metro Station

**Goodyear Hall:**

In addition to the above, the Stampede buses have the following ridership statistics at Goodyear Hall in the northern part of the South Campus:

- **AM Peak Period:** Passengers getting off: 633 (all arriving from North Campus)
  - Passengers getting on: 193 (going to the North Campus)
- **PM Peak Period:** Passengers getting off: 516 (all arriving from North Campus)
  - Passengers getting on: 304 (going to the North Campus)

**EFJ, December 8, 2008**
The Survey

Riders who benefit by eliminating a transfer

To get an estimate of the number of beneficiaries from the elimination of transfers, a field survey was conducted to count those who currently use the Metro station. Counts of movements at this station were done on Wednesdays and Thursdays in late October and early November 2008 at the University Metro Station. These counts were conducted during two peak periods – 7:30am to 10:30am in the morning and 3:00pm to 6:00pm in the evening. Individuals were tracked to determine how they arrived or left the station area and where they were going in the vicinity. The results are reproduced here as Table 1.

In the morning peak period slightly less than 2,000 individuals were counted and in the evening peak period about 2,600 individuals were counted. In the morning peak period individuals who travel between the Metro at the South Campus and the UB Stampede who would directly benefit from an extension of Metro to the North Campus consist of those traveling both southbound and northbound. In the morning peak period the southbound travelers totaled 31 and northbound totaled 49. In the evening time period northbound totaled 48 and southbound totaled 53.

A second group who might potentially benefit are those who now drive and park at the Metro station (park-and-ride: 211) or who are dropped off there (kiss-and-ride: 41). The comparable numbers in the evening peak are 108 and 64, respectively. A percentage of these individuals might shift to a Metro extension if there were added stops near their point of origin. Even more would shift if a park-and-ride were closer to their origins. This might be provided as a new station near the I-90 / I-290 interchange.

The third group who might potentially benefit from the extension includes those now using NFTA buses to travel to or from the University Metro station (park-and-ride: 211) or who are dropped off there (kiss-and-ride: 41). The comparable numbers in the evening peak are 108 and 64, respectively. A percentage of these individuals might shift to a Metro extension if there were added stops near their point of origin. Even more would shift if a park-and-ride were closer to their origins. This might be provided as a new station near the I-90 / I-290 interchange.

For each category defined by mode of arrival or departure at the University station – UB Stampede, Park-and-Riders, Kiss-and-Riders, NFTA bus riders and neighborhood walk-ons – an estimate was made of the share that would benefit from the extension. These results are presented in Table 2. The total two way trips that would benefit are estimated at about 700 on an average weekday. It must be remembered that this estimate is based on the current patterns of use by University-related travelers. The ramifications of this growth on the choice among transit alternatives will be discussed in greater detail later in this report.
<table>
<thead>
<tr>
<th>Market Segment</th>
<th>Time</th>
<th>Count</th>
<th>Assumed Daily</th>
<th>Percent Share to Metro Extension</th>
<th>Total Riding Metro Extension Under Current Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stampeders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stampede to Metro</td>
<td>Am Peak</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stampede to Metro</td>
<td>Pm Peak</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>Metro to Stampede</td>
<td>Am Peak</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro to Stampede</td>
<td>Pm Peak</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>164</td>
<td></td>
</tr>
<tr>
<td>Two-Way</td>
<td></td>
<td></td>
<td></td>
<td>145</td>
<td>100</td>
</tr>
<tr>
<td><strong>Park and Riders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Park and Ride to Metro</td>
<td>Am Peak</td>
<td>211</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Park and Ride to Metro</td>
<td>Pm Peak</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>350</td>
<td></td>
</tr>
<tr>
<td>Metro to Park and Ride</td>
<td>Am Peak</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro to Park and Ride</td>
<td>Pm Peak</td>
<td>108</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>248</td>
<td></td>
</tr>
<tr>
<td>Two-Way</td>
<td></td>
<td></td>
<td></td>
<td>299</td>
<td>33</td>
</tr>
<tr>
<td><strong>Kiss and Riders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiss and Ride to Metro</td>
<td>Am Peak</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiss and Ride to Metro</td>
<td>Pm Peak</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>Metro to Kiss and Ride</td>
<td>Am Peak</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro to Kiss and Ride</td>
<td>Pm Peak</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Two-Way</td>
<td></td>
<td></td>
<td></td>
<td>115</td>
<td>33</td>
</tr>
<tr>
<td><strong>NFTA Bus Users</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFTA Bus to Metro</td>
<td>Am Peak</td>
<td>374</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFTA Bus to Metro</td>
<td>Pm Peak</td>
<td>409</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,183</td>
<td></td>
</tr>
<tr>
<td>Metro to NFTA Bus</td>
<td>Am Peak</td>
<td>246</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro to NFTA Bus</td>
<td>Pm Peak</td>
<td>667</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,539</td>
<td></td>
</tr>
<tr>
<td>Two-Way</td>
<td></td>
<td></td>
<td></td>
<td>1,361</td>
<td>33</td>
</tr>
<tr>
<td><strong>Neighborhood Walk-ons</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood to Metro</td>
<td>Am Peak</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood to Metro</td>
<td>Pm Peak</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>Metro to Neighborhood</td>
<td>Am Peak</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro to Neighborhood</td>
<td>Pm Peak</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>153</td>
<td></td>
</tr>
<tr>
<td>Two-Way</td>
<td></td>
<td></td>
<td></td>
<td>136</td>
<td>0</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>731</td>
</tr>
</tbody>
</table>

Table 2: Travelers Who Would Avoid Transfer at University Station with Extension of Metro
Benefits for those not transferring to Metro

Table 1 indicated that among the 4,552 people counted, 1,595 were not transferring to or from the Metro. Some of these riders could be affected by changes in the transit system in the Metro station area. But this will only be the case for those who find the new service more convenient or faster. Of these 1,595, the vast majority, 1,228 are traveling on the UB Stampede between the North and South campuses, and another 148 use the Stampede buses but connect to them at the Metro station area using another mode to reach or leave the area, either NFTA buses, the park and ride on the South Campus, or walking to or from the station area from the neighborhood. Thus, 1376 (1,228 plus 149) would all gain whatever benefit the new service would provide over the existing stampede service.

The remaining 219 travelers using either NFTA buses or parking at the Metro station or walking to or from the station would only benefit to the extent that the new service would offer faster or more convenient service to warrant them shifting from their current mode of access to the South Campus area. Of these, the 93 who use NFTA to/from South Campus would almost certainly not come from the routes other than #34 or #44, since that would involve a circuitous route, traveling to or from the South Campus in one direction only to use the Stampede service in the other. Among the remaining 126 are 25 parkers and 25 that walk in from the neighborhood, and 74 who use one mode to enter the areas and another to leave it. A small percentage of those parking might use the new service if stops were located closer to their trip origins.

These estimates are expanded from the six hours of counts to the daily total and factored to show a total of 2,210 daily travelers who might benefit from a new service in the corridor, given current travel patterns, as shown in Table 3.

In addition, as the footnote in Table 1 indicates, there are about 800 trips in each peak period boarding or alighting from UB Stampede buses in the vicinity of Goodyear Hall. Expansion of these volumes based on the daily factors developed for the Metro station yields about 1,200 trips in each direction per weekday, or 2,400 daily. These travelers would only benefit if a station for the new service was located conveniently.

To summarize, it is estimated that approximately 700 trips per day would benefit by avoiding a transfer at the University Metro station and another 2,200 trips could benefit by having a service that replaced the current Stampede service. Another 2,400 would benefit if the new service stopped near Goodyear Hall. The extent of these benefits will depend more specifically on the service offered. The possibilities are discussed next.

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>Count</th>
<th>Assumed Daily</th>
<th>Percent Share to Metro Extension</th>
<th>Total Benefitting from New Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Campus / Stampede</td>
<td>1,228</td>
<td>1,965</td>
<td>100</td>
<td>1,965</td>
</tr>
<tr>
<td>Other Modes / Stampede</td>
<td>148</td>
<td>237</td>
<td>100</td>
<td>237</td>
</tr>
<tr>
<td>NFTA Bus / South Campus</td>
<td>93</td>
<td>149</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Park and Ride / South Campus</td>
<td>25</td>
<td>40</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Neighborhood / South Campus</td>
<td>27</td>
<td>43</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two Other Modes via Metro Station Area</td>
<td>74</td>
<td>118</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,595</td>
<td>2,552</td>
<td></td>
<td>2,210</td>
</tr>
</tbody>
</table>

Table 3: Travelers who are not using Metro Stations today who would benefit from new service
PART III: Transit Alternatives

Light Rail and Bus Rapid Transit

In this section, the characteristics of possible alternatives for transit service are discussed. These include light rail (LRT) and improved bus services, known as Bus Rapid Transit (BRT).

Light Rail

Light rail systems typically have close station spacing, vehicles operating in one to three car trains depending on the capacity required, with an operator who typically collects fares on board or with a pre-boarding payment system. Station platforms are often at a low level necessitating a climb to board trains. Light rail systems can operate at grade on streets, at grade on separate rights-of-way, elevated or in tunnels, or in combinations of these. The current Buffalo Metro service is classified as a light rail line, although it has some of the features of heavy rail, including high level platforms and off board fare collection. Its alignment operates both underground and at grade, with the underground portion in the northern portion of the line, including the northern terminus at the University station.

The features that differentiate the possible extensions of the Metro to the North Campus are their routing, elevations and stations. The line can be extended as a deep tunnel, with construction avoiding disruption at the surface, except where station entrances are located. It can operate closer to the surface, requiring more disruptive cut and cover methods. Or it can be built at grade running on street rights-of-way. Because light rail lines can negotiate relatively steep grades, they can be constructed to climb from one level to another over a short distance, making it possible to operate part of the line at or above grade, and other parts below grade. For example the existing terminus of the Metro line can be extended and elevated to the surface and operate on the street. It is also possible to use separate light rail equipment, such as a streetcar or tramway that might be more compatible visually and not connect it to the existing Metro.

Bus Rapid Transit

BRT is another option. This mode can be advantageous if it is given the more positive features of rail, such as off-vehicle fare collection and separate or preferential rights-of-way to speed the service, including preferential treatment at traffic signals, and fewer stops, all designed to speed service. BRT can also have the flexibility to have branches where buses operate conventionally to reduce walking distance to bus stops, and then operate as an express service with more limited stops on the BRT portion of the system.

In Table 4 these options are compared side by side, using the results of the analysis discussed earlier as input, where appropriate. For comparison purposes the existing service, labeled UB Base, is shown. Detailed derivations of the travel times in Table 4 are presented in Table 5.

As can be seen from Table 4, for trips between the North and South campuses the alternatives provide only small travel time advantages. In fact, the deep underground light rail extension would take longer, a result of the extra time for reaching the underground, although this might be mitigated somewhat if the station at the North Campus rose to a higher level, reducing the time passengers will take between the surface and the station. The table also shows “equivalent time” doubling the time waiting, walking and transferring, consistent with travel demand planning practice. Using this measure, the underground light rail alternatives fare poorly. All the alternatives to the current situation are likely to be more reliable than the existing service. The light rail alternatives are likely to be operated at a lesser frequency since longer trains with higher capacity are substituted for buses.

The comparisons show a substantially different change for trips between the North Campus and the Downtown Campus. Here the travel benefits of those alternatives not requiring a change of vehicles at the University station show up clearly. These alternatives take seven to ten minutes less, and when using the equivalent time measure, including a five minute delay for transferring, the travel time advantage stretches to close to fifteen minutes with the LRT on the surface connected to the existing Metro saving the most time. The light rail alternatives tend to be the most reliable.

The travel benefits to the neighborhoods through which any of these alternatives pass tend to be modest, except for trips using the extension of the existing Metro, where any of the alternatives not requiring a transfer improve the transit service in these neighborhoods. As can be expected, those alternatives that are operated underground offer more weather protection.

The operating costs are likely to be lower for those alternatives that offer higher travel speeds, since they are more productive on a cost per hour basis. This favors the light rail alternatives. How the costs are divided up between the NFTA and the UB would have to be the subject of negotiations between the two entities, making it impossible to know at this time which entity gains more from lower operating costs of the various alternatives.

Capital construction costs for the underground alternatives are likely to be high. The surface light rail connected to the underground Metro station will likely be considerably less, but still more than the exclusively surface light rail or BRT alternatives, since it would in
<table>
<thead>
<tr>
<th>Table 4: Comparison of Modes Between North and South Campuses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>North Campus vs. South Campus</strong></td>
</tr>
<tr>
<td><strong>Travel Benefits</strong></td>
</tr>
<tr>
<td><strong>Time (minutes)</strong>:</td>
</tr>
<tr>
<td>North Campus</td>
</tr>
<tr>
<td>South Campus</td>
</tr>
<tr>
<td><strong>Convenience (Climbing and Transfering)</strong></td>
</tr>
<tr>
<td><strong>Time (minutes)</strong>:</td>
</tr>
<tr>
<td>North Campus</td>
</tr>
<tr>
<td>South Campus</td>
</tr>
<tr>
<td><strong>Service Frequency</strong>:</td>
</tr>
<tr>
<td><strong>Reliability</strong>:</td>
</tr>
<tr>
<td><strong>Equivalent Time (minutes)</strong>:</td>
</tr>
<tr>
<td><strong>North Campus vs. Downtown Campus</strong></td>
</tr>
<tr>
<td><strong>Time (minutes)</strong>:</td>
</tr>
<tr>
<td><strong>Convenience (Climbing and Transfering)</strong></td>
</tr>
<tr>
<td><strong>Time (minutes)</strong>:</td>
</tr>
<tr>
<td>North Campus</td>
</tr>
<tr>
<td>South Campus</td>
</tr>
<tr>
<td><strong>Service Frequency</strong>:</td>
</tr>
<tr>
<td><strong>Reliability</strong>:</td>
</tr>
<tr>
<td><strong>Equivalent Time (minutes)</strong>:</td>
</tr>
<tr>
<td><strong>Weather Protection</strong></td>
</tr>
<tr>
<td><strong>System Performance</strong></td>
</tr>
<tr>
<td><strong>Capital Cost</strong></td>
</tr>
<tr>
<td><strong>Neighborhood Impacts</strong></td>
</tr>
<tr>
<td><strong>Driving Conditions</strong>:</td>
</tr>
<tr>
<td><strong>Traffic</strong>:</td>
</tr>
<tr>
<td><strong>Visual</strong>:</td>
</tr>
<tr>
<td><strong>Development Opportunities</strong>:</td>
</tr>
<tr>
<td><strong>Aesthetics</strong>:</td>
</tr>
<tr>
<td><strong>Area-wide &amp; Regional Impacts</strong></td>
</tr>
<tr>
<td><strong>Traffic</strong></td>
</tr>
<tr>
<td><strong>Energy Consumption</strong></td>
</tr>
<tr>
<td><strong>Carbon Emissions</strong></td>
</tr>
</tbody>
</table>

**Part III: Transit Alternatives**

---

**Table 4: Comparison of Modes Between North and South Campuses**

<table>
<thead>
<tr>
<th><strong>North Campus vs. South Campus</strong></th>
<th><strong>North Campus vs. Downtown Campus</strong></th>
<th><strong>North Campus vs. Downtown Campus</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time (minutes)</strong>:</td>
<td><strong>Convenience (Climbing and Transfering)</strong></td>
<td><strong>Service Frequency</strong>:</td>
</tr>
<tr>
<td>IUB BRT</td>
<td>Transfer</td>
<td>5</td>
</tr>
<tr>
<td>LRT on Surface</td>
<td>Transfer</td>
<td>5</td>
</tr>
<tr>
<td>Light Rail Expansion Cut and Cover Construction</td>
<td>Some climb</td>
<td>8</td>
</tr>
<tr>
<td>Light Rail Expansion &amp; Underground</td>
<td>Climb</td>
<td>8</td>
</tr>
<tr>
<td>Light Rail &amp; Underground Connection to Metro Rail</td>
<td>High</td>
<td>8</td>
</tr>
<tr>
<td><strong>Reliability</strong>:</td>
<td><strong>Equivalent Time (minutes)</strong>:</td>
<td><strong>Weather Protection</strong></td>
</tr>
<tr>
<td>Subject to delay</td>
<td>32</td>
<td>Poor</td>
</tr>
<tr>
<td>High</td>
<td>31.0</td>
<td>Better</td>
</tr>
<tr>
<td>High</td>
<td>31.0</td>
<td>Better</td>
</tr>
<tr>
<td>High</td>
<td>34.5</td>
<td>Best</td>
</tr>
<tr>
<td>High</td>
<td>36.5</td>
<td>Best</td>
</tr>
<tr>
<td>High</td>
<td>31.0</td>
<td>Best</td>
</tr>
<tr>
<td><strong>System Performance</strong></td>
<td><strong>Capital Cost</strong></td>
<td><strong>Neighborhood Impacts</strong></td>
</tr>
<tr>
<td>Costs shift from UUB to NFTA subject to negotiation; overall higher speeds reduces costs</td>
<td>Low</td>
<td><strong>Driving Conditions</strong>:</td>
</tr>
<tr>
<td><strong>Traffic</strong>:</td>
<td><strong>Visual</strong>:</td>
<td>N/A</td>
</tr>
<tr>
<td>Same as today</td>
<td><strong>Development Opportunities</strong>:</td>
<td>Minor</td>
</tr>
<tr>
<td><strong>Aesthetics</strong>:</td>
<td><strong>Area-wide &amp; Regional Impacts</strong></td>
<td>Minor</td>
</tr>
<tr>
<td>Same as today</td>
<td><strong>Traffic</strong></td>
<td>Minor</td>
</tr>
<tr>
<td>Slightly better</td>
<td><strong>Energy Consumption</strong></td>
<td>Minor</td>
</tr>
<tr>
<td>Slightly better</td>
<td><strong>Carbon Emissions</strong></td>
<td>Minor</td>
</tr>
<tr>
<td>Slightly better</td>
<td><strong>Neighborhood Impacts</strong></td>
<td>Minor</td>
</tr>
</tbody>
</table>
clude the capital cost of connecting the surface line with the current Metro terminus. During construction the impacts of the underground light rail alternatives will be considerable, particularly for the cut-and-cover alternative. The light rail surface connection to the Metro will also be disruptive, but only near the Metro station. In the long run, there will be little difference in the appearance of the streets on which any of these vehicles operate and even less visual impact for the underground alternatives. It can be expected that any alternative that improves transit will result in shifts from automobiles to transit, reducing traffic, particularly near the University station and along Main Street. There may be localized changes in the traffic pattern where surface transit vehicles, either buses or light rail vehicles, use some of the street rights-of-way.

Environmentally, from the perspective of energy consumption, air quality and carbon emissions, the light rail alternatives are likely to be more advantageous. As has been the case elsewhere, they offer better prospects for encouraging development near stations. In this corridor, opportunity exists near the intersection of Bailey and Sheridan, where there is underutilized and/or vacant land. Development here could be of great advantage where new transit service can generate ratables or expand housing stock or both in an area where auto dependency can be lower than the surrounding neighborhoods. At locations just south of the North Campus, the potential for park-and-ride type stations, which are near entrances to I-90 and I-290, are also a possibility.

The light rail alternatives can be the beginning of a more regional transit network. This can especially be the case when the University at Buffalo expands Downtown, making fast and convenient travel among the three Campuses a greater imperative for the University. This expansion and its impacts on the alternative transit improvements are discussed in the next section of this report.

<table>
<thead>
<tr>
<th>Between North and South Campuses</th>
<th># of Transfers Required</th>
<th>Walk</th>
<th>Wait</th>
<th>Ride 1st Leg</th>
<th>Transfer Time</th>
<th>Wait 2nd Leg</th>
<th>Ride 2nd Leg</th>
<th>Walk</th>
<th>Nominal Travel Time</th>
<th>Total Time Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>UB base</td>
<td>0</td>
<td>3</td>
<td>2.5</td>
<td>16</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>3</td>
<td>23.5</td>
<td>32</td>
</tr>
<tr>
<td>BRT</td>
<td>0</td>
<td>3</td>
<td>2.5</td>
<td>13</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>3</td>
<td>21.5</td>
<td>30</td>
</tr>
<tr>
<td>LRT on surface</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>11.6</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>3</td>
<td>21.6</td>
<td>31.6</td>
</tr>
<tr>
<td>Light rail extension cut and cover</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>10.6</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>4</td>
<td>22.6</td>
<td>34.6</td>
</tr>
<tr>
<td>Light rail extension deep underground</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>10.5</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>5</td>
<td>24.5</td>
<td>38.5</td>
</tr>
<tr>
<td>LRT on surface and then underground ctc</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>11.6</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>3</td>
<td>21.6</td>
<td>31.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Between North and Downtown Campuses</th>
</tr>
</thead>
<tbody>
<tr>
<td>UB base</td>
</tr>
<tr>
<td>BRT</td>
</tr>
<tr>
<td>LRT on surface</td>
</tr>
<tr>
<td>Light rail extension cut and cover</td>
</tr>
<tr>
<td>Light rail extension deep underground</td>
</tr>
<tr>
<td>LRT on surface and then underground ctc</td>
</tr>
</tbody>
</table>

**Assumptions**
- In vehicle travel speeds for UB = 12.5 mph; BRT 15 mph; LRT on street = 17.5 mph; LRT underground = 20 mph
- 3 stops for each alternative to base, including near I-90/1-290, in residential area of Amherst, and near Goodyear Hall
- Each stop adds one minute of travel time
- Walk time and wait time doubled for travel time equivalency
- Wait time is half of headways
- Other assumptions apparent from table

**Table 5: Travel Time Comparisons for Alternatives**
Part III: Transit Alternatives

With the expected substantial expansion of the Downtown Campus, the travel patterns among the three campuses would certainly change. The growth anticipated by the University by 2020 is shown in Table 6.

The University projects that in this twelve year period there will be 13,700 more people – students, employees, faculty – at all locations. Of this growth, most will be at the Downtown Campus, with modest growth in the North and South Campuses and sharp decline in the scattered locations not at the three main campuses. The Downtown Campus's infrastructure is also expected to grow enormously, with upwards of 2 million more square feet of buildings. The North Campus is projected to grow by 1.7 million square feet of floorspace, or about 30 percent in space but only by 5 percent in the number of people working and studying there. The South Campus is expected to grow by 20 percent in employees and students but only 4 percent in space, suggesting that the existing space will be more intensively used.

These enormous shifts in activities are sure to change the patterns of travel among campuses. With so much growth anticipated at the Downtown Campus and with substantial growth at both the North and South campuses, it can be expected that travel among the campuses will grow substantially.

It is not possible, with the resources available for this report, to be definitive about the changes in travel patterns. However, it is possible to get a sense of how much of a change is likely to occur by experimenting with a trip distribution model that accounts for trip end growth and using these growth factors to expand the existing trip origin - destination pattern. This distribution model, known as the Fratar Model, named after its originator Thomas Fratar, is used here to gain a rough approximation of the growth in origin-destination pairs for travel among and within campuses. This was done in spite of the absence of usable data of existing patterns of travel. The growth factors were applied to two estimated travel patterns. The model concluded that a

<table>
<thead>
<tr>
<th>Campus</th>
<th>Faculty</th>
<th>Staff</th>
<th>Student</th>
<th>Total People</th>
<th>Space (mil. sq.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Today</td>
<td>2,644</td>
<td>5,631</td>
<td>30,660</td>
<td>38,925</td>
<td>8.895</td>
</tr>
<tr>
<td>2020</td>
<td>3,648</td>
<td>8,379</td>
<td>40,660</td>
<td>52,677</td>
<td>12.659</td>
</tr>
<tr>
<td>Increase Factor</td>
<td>1.38</td>
<td>1.49</td>
<td>1.33</td>
<td>1.35</td>
<td>1.42</td>
</tr>
<tr>
<td>Increase (decrease)</td>
<td>1,004</td>
<td>2,748</td>
<td>10,000</td>
<td>13,752</td>
<td>3.764</td>
</tr>
<tr>
<td>Downtown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Today</td>
<td>110</td>
<td>56</td>
<td>195</td>
<td>361</td>
<td>0.28</td>
</tr>
<tr>
<td>2020</td>
<td>1,266</td>
<td>2,142</td>
<td>10,388</td>
<td>13,796</td>
<td>2.265</td>
</tr>
<tr>
<td>Increase Factor</td>
<td>12</td>
<td>38</td>
<td>53</td>
<td>38</td>
<td>8.09</td>
</tr>
<tr>
<td>Increase (decrease)</td>
<td>1,156</td>
<td>2,086</td>
<td>10,193</td>
<td>13,436</td>
<td>1.985</td>
</tr>
<tr>
<td>South Campus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Today</td>
<td>636</td>
<td>1,236</td>
<td>5,758</td>
<td>7,629</td>
<td>2.379</td>
</tr>
<tr>
<td>2020</td>
<td>655</td>
<td>1,594</td>
<td>6,869</td>
<td>9,118</td>
<td>2.464</td>
</tr>
<tr>
<td>Increase Factor</td>
<td>1.03</td>
<td>1.29</td>
<td>1.19</td>
<td>1.20</td>
<td>1.04</td>
</tr>
<tr>
<td>Increase (decrease)</td>
<td>19</td>
<td>359</td>
<td>1,111</td>
<td>1,489</td>
<td>0.085</td>
</tr>
<tr>
<td>North Campus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Today</td>
<td>1,608</td>
<td>3,865</td>
<td>22,545</td>
<td>28,018</td>
<td>5.975</td>
</tr>
<tr>
<td>2020</td>
<td>1,722</td>
<td>4,432</td>
<td>23,185</td>
<td>29,339</td>
<td>7.724</td>
</tr>
<tr>
<td>Increase Factor</td>
<td>1.07</td>
<td>1.15</td>
<td>1.03</td>
<td>1.05</td>
<td>1.29</td>
</tr>
<tr>
<td>Increase (decrease)</td>
<td>114</td>
<td>567</td>
<td>640</td>
<td>1,321</td>
<td>1.749</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Today</td>
<td>290</td>
<td>475</td>
<td>2,152</td>
<td>2,917</td>
<td>0.261</td>
</tr>
<tr>
<td>2020</td>
<td>5</td>
<td>211</td>
<td>203</td>
<td>424</td>
<td>0.206</td>
</tr>
<tr>
<td>Increase Factor</td>
<td>0.02</td>
<td>0.44</td>
<td>0.10</td>
<td>0.15</td>
<td>0.79</td>
</tr>
<tr>
<td>Increase (decrease)</td>
<td>-285</td>
<td>-264</td>
<td>-1,944</td>
<td>-2,493</td>
<td>-0.056</td>
</tr>
</tbody>
</table>

Table 6: UB 2020 Growth Projections
range of four to six times the amount of travel between the North Campus and the Downtown Campus would be likely by 2020 if the development assumptions came to pass. Travel demand increases between the North and South campuses are likely to be modest.

Once a full origin-destination survey is done for all travel among the campuses today it will be possible to gain a clearer idea of the relative growth of travel among campuses. It will also depend on the assignment of fields of study at the campuses in the future and to the extent students will be assigned housing to be in closer proximity to their courses of study.

To gain a better understanding of the needs for transit among campuses it is highly recommended that an origin-destination study covering all employees and students on campus be conducted and the data applied to a full four step demand modeling process to determine the trip generation, trip distribution, mode choice and travel assign characteristics for a variety of possible future transit modes. Unless this is accomplished it will be impossible to properly plan for the transit services for the campuses.

Despite the absence of data it is possible to conjecture about the possible transit modes connecting the North and South campuses. Using the gains in equivalent travel times presented in Table 4 and applying them to the estimated demand for travel between North and South campuses (4,600 per day) and between the North and Downtown Campuses (713 per day) we conclude that only two alternatives, the BRT and the light rail surface connected to Metro, produce significant travel gains for these markets. However, if the North Campus to Downtown Campus market grows to the extent expected, possibly by a factor of six, all alternatives show reduced travel times, but the surface light rail linked directly to Metro yields the most travel time benefits and the light rail in cut and cover also shows a high level of benefits. The BRT drops to third place. While this analysis is far from definitive, it suggests strongly that the light rail on the surface with the connection to the existing Metro line underground be given serious consideration.
On February 27, 2009, the Greater Buffalo-Niagara Regional Transportation Council (GBNRTC) convened a workshop session in Buffalo. The objective on the meeting was to share with a select group of stakeholders the initial evaluation of the transit alternatives in the UB three-campus corridor and to begin a discussion about the potential for transit-supportive development and its relationship to community character. GBNRTC gave a brief presentation outlining the history of land use change in the corridor, the growth of the North Campus, and the projections for future growth of UB on all three campuses. Jeff Zupan then presented his methodology and a matrix providing a qualitative assessment of the different alternatives. Finally, Rob Lane gave a brief presentation on the benefits of TSD and introduced a series of photo simulations (pages 18-20) which depicted various modes in various settings along the corridor, and where appropriate, the associated transit-supportive redevelopment.

Following the presentations, the attendees were assigned to three groups composed in a way that brought together people with different perspectives. The groups were asked to answer four questions. Two of these related to the overall challenges of improving mobility in the corridor:

1. **What are the three biggest obstacles to implementing transit in the university corridor study area and how can these best be addressed?**
2. **What would be the most important benefits to implementing more transit in the university corridor study area (e.g., traffic mitigation, redevelopment of marginal areas)?**

And two of the questions related to the vehicle choice, community character, and redevelopment:

1. **What are the things that appeal to you about these images?**
2. **What concerns you about these images?**

The groups reported back during a plenary session for open discussion.
Findings: Issues and Opportunities
All groups agreed on the need for a broader discussion and more outreach and education. This is the only way to really understand what the obstacles and potential opportunities are and what people are really thinking.

Issue: Political Context
The history of both the existing light rail and the discussions surrounding its extension have at times been contentious. Most recently this has been exacerbated by disagreements over land use between the university and the town of Amherst. This air of contention hanging over the discussion needs to be dispelled for this initiative to advance.

Issue: History
Part of the challenge here is that many of the suburbs were always auto-oriented places and the residents there have never had experience with transit. The other challenge relating to history is that there has not been much development around the existing stations leading people to wonder why TSD would happen now.

Issue: Costs and Benefits
There is a need for a fuller explanation of both the costs and the benefits - of how it will be paid for and what the larger economic benefits are likely to be.

Issue: Demographic Change
The town of Amherst, like many places, is “getting greyer.” This population has very little experience with transit (Amherst was never a “streetcar suburb”), and may be resistant to change even though this group would benefit from access to transit. At this time there is no evidence of a younger population moving in that might be more interested in transit options and the lifestyle changes associated with compact, mixed-use TSD environments.

Opportunity: Environment
There are significant environmental benefits in terms of air quality and non-point source pollution by shifting away from car travel.

Opportunity: Redevelopment
The stakeholder groups identified several areas where transit improvements could be leveraged for redevelopment and place-making at several marginal locations.

Opportunity: Transportation Equity
There is an equity issue that can be addressed through more transit. There is evidence that lower paid service workers, many of them immigrants, have difficulty getting to work because they are dependent on car travel. This also affects employer access to this labor pool. More transit could help solve this.
Photo Simulations of Transit Alternatives

Neighborhood Street - Existing

Neighborhood Street with BRT

Neighborhood Street with LRT Vehicle A

Neighborhood Street with LRT Vehicle B
Photo Simulations of Transit Alternatives

- Residential and Commercial Corridor Existing
- Residential and Commercial Corridor with LRT Vehicle A
- Residential and Commercial Corridor with LRT Vehicle A and Redevelopment
- Residential and Commercial Corridor with LRT Vehicle C and Redevelopment
Findings: Community Character and Response to Photo-Simulations

Overall Impressions
Stakeholders felt that these images would be even more convincing if they showed more pedestrian activity - imagery to support the "sense of place" - what it would be like to shop, walk, and interact with others. Overall, the simulations need to show more green, more people and more pedestrian improvements - traffic-calming and "road diet" interventions. In addition to photo simulations of places in Buffalo, participants felt that it was important to show more photos of real places and real precedents.

While the simulations of the vehicles on neighborhood streets were not convincing, there were broad receptivity to those images that illustrated pedestrian-oriented redevelopment of marginal commercial areas.

Transit Corridor Options
The groups did not find the simulations of any of the modes on the typical residential neighborhood streets appealing. Despite the historic precedent of the "streetcar suburb," participants did not believe that community transit on a neighborhood street such as Grover Cleveland Highway could be acceptable to the community. The more direct route may not be the one that garners the most community support. Also, there seem to be more redevelopment opportunities on this route and Bailey than on Grover Cleveland Highway.

In response, several groups talked about running surface transit along Niagara Falls Boulevard - a wider more developed corridor. One participant suggested that a precedent for this might be the "Green Line" trolley along Commonwealth Avenue in Boston. This is a less direct route and would have to be evaluated.

Surface Vehicles versus Below Grade
Despite the fact that most of the visual imparts can be eliminated by "hiding" the vehicles below ground, most participants felt that this solution would reinforce prejudices against "subways," which is the way the current "light rail" vehicles are perceived. Stakeholders preferred the simulations that showed what would be characterized more as a "trolley" - lighter vehicles, shorter trains. While the surface alternative is preferred, the overhead wires look problematic.

The stakeholders also appreciated that some measure of the potential for induced transit-oriented development depends on the visibility of the vehicles and the stations.
PART IV: Conclusions & Next Steps

Conclusions

1. The anticipated growth on the Downtown Campus of the University at Buffalo between now and 2020 suggests that there will be significant new travel demand between that campus and the South and the North campuses.

2. The extension of the Metro light rail from the terminus at the University station at the South Campus has the potential to provide significant travel benefits, by offering a direct one-seat ride between points south of that station, including to the Downtown Campus and to the University at Buffalo’s North Campus.

3. The light rail alternatives can benefit from the use of a vehicle that has the features of a streetcar, narrower and shorter than the existing Metro cars. Such vehicles could be phased in at time when the existing Metro cars need to be replaced. This would require establishing platforms at the new stations to eliminate stairs for climbing on and off vehicles, thus speeding loading and making the vehicles more accessible.

4. The level of travel growth that might result is likely to be highly significant, possibly four to six times more than there is now and could very easily influence the decision about the most effective transit alternative between the North and South campuses.

5. Among the rail extension alternatives the one that shows the most promise is an extension that transitions from the underground Metro station to the surface and then continues on the surface along street rights-of-way. This alternative, while slower in the segment between the two campuses than an underground alignment, would be less disruptive during construction than the below grade alternatives.

6. Bus Rapid Transit (BRT) is an alternative that shows promise, but would require riders to transfer at the Metro station for travel between northern locations and the Downtown area. Although it would be less disruptive than the underground rail alternatives, it would be less likely to generate development interest near station stops than the rail alternatives.

7. Since the value of any of these alternatives would accrue to both the University at Buffalo and the Town of Amherst, and since any of the alternatives would pass through the Town, the two entities must engage in a full and frank conversation about the advantages and disadvantages of each alternative.

8. A more complete examination of the travel demand and benefits to the corridor and to the Buffalo-Niagara Frontier Region is needed to inform these discussions.

9. With the growing concern over global warming, the rising cost and volatility of gasoline prices, and the challenges of sprawl development, additional transit options will be increasingly important.
Next Steps

**Continue Dialogue and Cooperation Between the University and the Town of Amherst**
Since the value of any of these alternatives would accrue to both the University at Buffalo and the town of Amherst, and since any of the alternatives would pass through the town, the two entities must engage in a full and frank conversation about the advantages and disadvantages of each alternative.

**Quantify the Impacts**
This analysis was also constrained by the lack of data. There is a need for a fuller explanation of both the costs and the benefits - of how it will be paid for and what the larger economic benefits are likely to be. This would help address the concern that the traffic impacts of the transit improvement need to be quantified in a realistic way.

**Grow the Outreach Effort**
Because this initial work was done by a selected group of interested and supportive stakeholders, a lot of work was accomplished in a very compressed time period. But this group agreed that going forward it would be necessary to reach out to additional stakeholders, especially the citizens of Amherst who would be most affected, but who would also have the most to gain from a new transit initiative. Part of the outreach needs to be an education effort that is targeted to an aging population that has little first-hand experience with transit and potentially has the most to gain. A robust outreach effort would also create the platform for a more robust and positive dialog between the University and the Town. Other groups that should be targeted include the business community and real estate interests.
Regional Plan Association (RPA) is an independent, not-for-profit regional planning organization that improves the quality of life and the economic competitiveness of the 31-county New York-New Jersey-Connecticut region through research, planning, and advocacy. For more than 80 years, RPA has been shaping transportation systems, protecting open spaces, and promoting better community design for the region’s continued growth. We anticipate the challenges the region will face in the years to come, and we mobilize the region’s civic, business, and government sectors to take action.

BFJ Planning (BFJ) is a multi-disciplinary consulting firm providing professional expertise in urban planning and design, transportation planning, real estate consulting, and environmental analysis. The firm’s work is distinguished by a high degree of participation by its principals in the technical work of each project, exceptional capabilities in graphic design (including GIS) and presentation, and a strong commitment to participatory planning. BFJ has successfully completed more than 1,000 projects in the U.S., East Asia, Europe, and South America.