FRANKLIN AVENUE
Hennepin Avenue to 20th Avenue

MOVING TOWARDS A COMPLETE STREET
Feasibility Analysis
November 4, 2013
1 Project Background

1.1 Introduction

Franklin Avenue is one of twelve corridors in Minneapolis and Saint Paul that is being studied by Bike Walk Twin Cities (BWTC)/Transit for Livable Communities (TLC) to improve conditions for bicycling and walking and to encourage more people to walk or bike for transportation purposes. Franklin Avenue between Hennepin and 20th Avenue in Minneapolis—an approximately 2.3 mile long corridor (see Figure 1) presently provides a relatively high degree of mobility for motorists with a substandard safety record for motorists, bicyclists and pedestrians. Pedestrian conditions vary greatly but are generally poor. Bicyclists are not specifically accommodated. This feasibility study follows the principals established in the Hennepin County Complete Streets Policy and considers all relevant planning efforts to address mobility, safety, and neighborhood livability goals.

![Figure 1 - Franklin Avenue Study Area Location Map](photo credit: Minneapolis Bicycle Coalition)

1.2 Geographic Context

Franklin Avenue is an east/west street with a mixture of commercial and residential land uses, located just south of I-94. The adjacent freeways create barriers limiting connectivity through the neighborhood, inducing traffic to travel along Franklin. Given the street’s proximity to I-94 and downtown Minneapolis’ angled street pattern just north of that, there are no nearby continuous parallel streets north of Franklin Avenue. South of I-94, the street network is a relatively uniform grid pattern; however I-35W sees severe street connectivity. The first parallel street with a crossing of I-35W is 24th Street, located a quarter mile south of Franklin Avenue. The crossing is a non-ADA compliant pedestrian overpass of I-35W with the east approach a stairway rather than a ramp making it a barrier to bicyclists and people with disabilities. Additionally, 24th Street traffic signals are not favored when crossing busier north-south streets. The closest street with 35W with the east approach a stairway rather than a ramp making it a barrier to bicyclists and people with disabilities.

Franklin Avenue provides the only bridge (over the Mississippi River) access to the City of St. Paul between Washington Avenue and Lake Street and is thus a critical bicycle connection between the Cities and intermediate neighborhoods. Additionally, Franklin provides a relatively direct route to the University of Minnesota campus, located northeast of the study corridor. The west end of the study corridor crosses Hennepin Avenue and Lyndale Avenue—both busy streets with popular commercial destinations. Neighborhood business nodes exist on Franklin Avenue at Hennepin, Lyndale, Nicollet, Bloomington and 11th Avenues. In addition to being a critical east/west connection, Franklin Avenue connects with many north/south bicycling amenities or transfer points including: the Bryant-to-Lyndale bicycle/pedestrian flyover bridge, bike lanes on Blaisdell, Portland, Park, and 11th Avenues, and the Hiawatha light rail transit (LRT) station near Cedar Avenue. The street is flat with the exception of a big hill dipping down and back up on either side of Lyndale Avenue.

1.3 Planning Context

Franklin Avenue has been the subject of planning efforts by community groups; neighborhoods; agencies with jurisdiction over various parts of Franklin Avenue (including the City of Minneapolis, Hennepin County, and MnDOT); city departments; and Metro Transit.

1.3.1 City and County Efforts

The list below demonstrates how Franklin Avenue currently appears in City and County planning documents:

- **Minneapolis Bicycle Master Plan (2011)**—identifies bike lanes on entire distance of Franklin Avenue; also identifies this street as a collector bikeway.
- **Minneapolis Pedestrian Master Plan (2009)**—established a number of goals to foster walking by creating a safe, comfortable, accessible walking environment. Supports efforts to reduce sidewalk bicycle riding.
- **Minneapolis Citywide, Ten-Year Action Plan (2009)**—categorizes Franklin Ave as a “Community Connector” between Hennepin Avenue & I-35W; and as a “Commecne Street” between I-35W and the River
- **Access Minneapolis’ Design Guidelines for Streets and Sidewalks** identifies Franklin Avenue as a pedestrian priority corridor.
- **Hennepin County Bicycle Transportation Plan (2001)**—recommends consideration of four-lane to three-lane conversions. 24th Street is the closest proposed east/west bikeway in the present network plan.
- **Hennepin County Transportation Strategic Plan -** Between Hennepin Avenue and Lyndale Avenue, Franklin Avenue is designated as a Municipal State Aid (MSA) route. From Lyndale Avenue to the east, Franklin Avenue is a designated County State Aid (CSA) route. Overall, Franklin Avenue is functionally classified as an A-Minor Reliever from Hennepin Avenue to University Avenue in St. Paul, with a purpose to relieve principal arterial and interstate congestion during peak hours by providing an alternative route for short (2-6 mile) motorist trips. While this designation implies modal priority for automotive travel, the plan recognizes that flexibility is available to improve bicyclist and pedestrian travel as well as to improve streetscape character of all roadways in the County System.
- **Hennepin County Complete Streets Policy (2009)**—Hennepin County was the first County in Minnesota to adopt a complete streets policy. The policy recognized the challenges of retrofitting the built environment stating: “flexibility in accommodating different modes of travel is essential to balancing the needs of all corridor users.” The policy identifies a process for assessing improvements on County Roads stating planning processes will:
  - Involve local community and stakeholders
  - Consider the function of the road
  - Integrate innovative and non-traditional design options
  - Consider Transitway corridor alignment and station areas
  - Assess current and future needs of corridor users
  - Include documentation of efforts to accommodate all modes and users
- **Franklin Avenue Road and Lane Diet Project (2010/2011)**—Hennepin County and the City of Minneapolis implemented a road diet along Franklin Avenue from 21st Avenue South east to 27th Avenue (including the bridge over the Mississippi River) taking portions roadway from 4 lanes to 2 and narrowing lanes along 2 lane sections to install continuous bicycle lanes.

![Figure 2 - Franklin Avenue in Seward](photo credit: Minneapolis Bicycle Coalition)
1.3.2 Community Group Efforts
A variety of community and neighborhood groups have long considered the future of Franklin Avenue. Neighborhoods in this area include Lowry Hill, Lowry Hill East, Whittier, Stevens Square/Loring Heights, Ventura Village and Seward. A variety of community groups are also active in the corridor, including Hope Community (a housing and community development organization) and various groups representing the Native American population. The drawing in Figure 2 highlights a concept developed by the Native American Community Development Institute (NACDI). This plan focuses on transforming Franklin Avenue into a more robust regional cultural and economic corridor, specifically focusing pedestrian and bicycling connectivity to the Hiawatha LRT station.

Figure 3 - Concept Drawing Looking West on Franklin Avenue, just East of Franklin Avenue LRT Station on Hiawatha Line (Source: American Indian Cultural Corridor Report)

2 Existing Conditions

2.1 Roadway Cross Sections
Franklin Avenue has predominantly three distinct-sections throughout the corridor. Each of the different cross-sections that exist on the street is described below. An outlier is the segment between Bloomington and Columbus Avenue.

2.1.1 Hennepin Avenue to Columbus Avenue (Segment A)
Hennepin Avenue to Columbus Avenue consists of a four-lane roadway with two 12-foot travel lanes in each direction (see Figure 4). Throughout this segment, parking is allowed in some areas during non-peak travel periods. Peak travel periods are from 7 AM to 9 AM and 4 PM to 6 PM. When parking is allowed and used, this segment effectively becomes a two-lane street.

Figure 4 - Existing Road Section Hennepin Avenue to Columbus Avenue

2.1.2 Columbus Avenue to Bloomington Avenue (Segment B)
Columbus Avenue to Bloomington Avenue consists of 3-lanes with one 14-foot travel lane in each direction, a 12-foot two way left turn lane (TWLTL) with seven-foot parking lanes/curb extensions (see Figure 5). The parking lane is unmarked and the curb extensions extend seven feet from face of curb. The curb extensions were recently installed and sidewalks were reconstructed largely due to a neighborhood effort to make this segment more pedestrian friendly and welcoming.

Figure 5 - Existing Road Section Columbus Avenue to Bloomington Avenue

2.1.3 Bloomington Avenue to Minnehaha Avenue (Segment C)
Bloomington Avenue to Minnehaha Avenue consists of a four-lane roadway with two 12-foot travel lanes in each direction, a median and unrestricted parking on the outside of the through lanes (see Figure 6). This short segment is between two, two-lane segments of roadway along Franklin Avenue to the west and east.

Figure 6 - Existing Road Section Bloomington Avenue to Minnehaha Avenue
2.2 Motor Vehicle Traffic Volumes

In 2012, motor vehicle traffic volumes along Franklin Avenue ranged from 6,000 to 19,800 vehicles per day (see Figure 7). The highest levels of traffic on Franklin Avenue occur during the PM peak hours—4-6 PM.

Future traffic volumes are expected to range from 7,200 to 21,500 vehicles per day based on a 0.5% traffic increase per year as assumed in the Access Minneapolis Citywide Action Plan. It should be noted however, that the historical traffic trendlines for traffic on Franklin Avenue, while fluctuating year to year, have been generally flat or decreasing since 2002 based on annual counts conducted by MnDOT. The following table documents the reported MnDOT traffic volumes per year along Franklin Avenue.

<table>
<thead>
<tr>
<th>Year</th>
<th>Hennepin Ave to</th>
<th>Lyndale Ave to</th>
<th>Nicollet Ave to</th>
<th>I35W to Cedar</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>13,400</td>
<td>20,800</td>
<td>19,900</td>
<td>22,200</td>
</tr>
<tr>
<td>2003</td>
<td>7,000</td>
<td>14,000</td>
<td>14,200</td>
<td>14,000</td>
</tr>
<tr>
<td>2004</td>
<td>7,000</td>
<td>14,100</td>
<td>14,200</td>
<td>14,200</td>
</tr>
<tr>
<td>2005</td>
<td>6,400</td>
<td>13,500</td>
<td>16,600</td>
<td>14,200</td>
</tr>
<tr>
<td>2006</td>
<td>6,400</td>
<td>13,500</td>
<td>16,600</td>
<td>14,200</td>
</tr>
<tr>
<td>2007</td>
<td>6,200</td>
<td>13,200</td>
<td>17,800</td>
<td>17,400</td>
</tr>
<tr>
<td>2008</td>
<td>6,300</td>
<td>13,200</td>
<td>17,800</td>
<td>17,400</td>
</tr>
<tr>
<td>2009</td>
<td>6,200</td>
<td>14,800</td>
<td>19,500</td>
<td>16,400</td>
</tr>
<tr>
<td>2010</td>
<td>6,300</td>
<td>14,800</td>
<td>19,500</td>
<td>16,400</td>
</tr>
<tr>
<td>2011</td>
<td>6,300</td>
<td>12,200</td>
<td>16,900</td>
<td>13,900</td>
</tr>
<tr>
<td>2012</td>
<td>6,000</td>
<td>12,200</td>
<td>19,800</td>
<td>17,100</td>
</tr>
</tbody>
</table>

A traditional operational performance measure for roadways is motor vehicle level of service (LOS) which measures motorists delay. A letter, A through F, is assigned to a roadway or intersection based on performance, with A being the best (no congestion, least delay) and F being the worst (short periods of gridlock and high delay). No performance measure has been formally adopted for operations of city streets within the City of Minneapolis and many typically operate at LOS D or lower during peak hour traffic (7 AM to 9 AM and 4 PM to 6 PM). The existing PM LOS along Franklin Avenue ranges from A through F. Mobility challenges are predominantly located in two segments of Franklin: Hennepin to Nicollet and 4th to Portland. More detailed LOS traffic information is located in Appendix A – Parking/LOS, Appendix E – SYNCHRO Existing AM/PM Peak Hours, and Appendix H – LOS Option Summary.

2.3 Parking

On street parking is allowed on much of Franklin Avenue, with some restrictions. On the west side of the corridor from Hennepin Avenue to Blaisdell/LaSalle Avenue, demand for parking is high on both sides of the street in the evenings, overnight and on weekends due to the large amount of residences in the surrounding vicinity. There is also high weekend and overnight parking demand on both sides of the street from 2nd Avenue to 3rd Avenue. On the east end of the corridor from Chicago Avenue to Bloomington Avenue, parking is in high demand during the weekdays and on weekends from people visiting businesses located in this area. From Bloomington Avenue to Cedar Avenue, unrestricted parking is allowed. This parking is primarily used by riders of Hiawatha LRT.

There is very little parking turnover in this area on weekdays when most of these parking spaces are utilized. The public and surrounding neighborhoods support retaining this free parking as people from the neighborhoods use it and they feel it will help draw people into the retail district along Franklin Avenue. Demand for on street parking throughout the remainder of the corridor, some of which is designated as no parking zones near I-35W, is not high. More detailed LOS traffic and parking information is located in Appendix A – Parking/LOS.

2.4 Bicyclist and Pedestrian Issues and Other Considerations

2.4.1 Bicyclists and Pedestrians Volumes

In 2011, the City of Minneapolis gathered intersection data along Franklin Avenue, including bicycle and pedestrian volumes traveling through key intersections. Pedestrian and bicyclist counts at specific intersections are shown in Figure 8, demonstrating that there are high numbers of pedestrians and bicyclists traveling in and around Franklin Avenue.

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1 http://www.dot.state.mn.us/traffic/data/
2.4.2 Bicyclist Experience

There are presently no specific bicycle facilities on Franklin Ave west of Minnehaha Ave. Rather bicyclists use travel lanes, which vary from 12 to 14 feet in width, or on the adjacent sidewalks. Field observations revealed many bicyclists riding on sidewalks (see Figure 10). This is typical behavior on roadways with high traffic volumes and operating speeds which do not have separate provisions (i.e. bike lanes or side paths) for bicycling (see Figure 9). City of Minneapolis 2012 bicycle counts of Franklin Ave (just west of Nicollet) revealed that 35% of cyclists were riding on the sidewalks to avoid the roadway. Streets similar to Franklin Ave that have bike lanes have a very low incidence of sidewalk riding (e.g., just 2% on nearby Riverside Ave).

Portions of Franklin Avenue have gutters which extend past the face of curb about one-foot which reduce the effective outside lane width available for bicycling (where parking is not present or allowed). Steep grades on Franklin Avenue on either side of Lyndale Avenue significantly slow bicyclists riding up hills, which decreases comfort and potentially their safety operating within the shared travel lane due to increased speed differential with motorists.

High traffic volumes and a lack of dedicated bicycle operating space make Franklin Avenue an uncomfortable road for bicycling with bicycle level of service (BLOS)3 averaging D (uncomfortable) throughout the corridor. As is typical of roadways with low BLOS or no bicycle facilities, bicyclists routinely ride on the sidewalks both with and against traffic. Sidewalk and wrong-way riding are leading causes of bicyclist crashes in urbanized areas. A recent bicycle crash report released by the City of Minneapolis4 revealed that Franklin Ave had the 2nd highest number of absolute bicycle crashes (205) and the 14th highest crash rate (25.1 crashes/million miles) compared to all other streets within the City of Minneapolis. The crashes have generally been increasing year to year since 2000.

Portions of Franklin Avenue between 5th Avenue and the Hiawatha LRT bridge were cited by participants at Franklin Avenue meetings as problematic in terms of crime and general safety. The area of Franklin Avenue under the Hiawatha Avenue and the Hiawatha LRT station bridges were noted as an area of concern due to the unfriendly pedestrian environment created by the bridges. Additional lighting was added to this area in the spring of 2012 in an effort to improve safety and comfort. In general, good lighting conditions and continuous traffic along Franklin Avenue make the street feel safer than adjacent side streets after dark.

2.4.3 Pedestrian Experience

Conditions for pedestrians vary from good to poor on Franklin Avenue. Sidewalk widths vary considerably—from four to ten feet. The worst walking conditions correspond to areas with very narrow sidewalks (less than 6 feet) that are encroached on even further by signposts or utilities. Locations along Franklin Avenue with sidewalks of less than 6 feet in width are recommended for repair and widening on the concept drawings provided in Appendix J. The best walking conditions correspond to areas with the widest sidewalks that are also adjacent to commercial activity on the eastern end of Franklin. Other pedestrian issues along Franklin Avenue include sidewalks directly adjacent to the road, curb ramps that are not compliant with the Americans with Disabilities Act (ADA), inaccessible pedestrian crossing push buttons, bicyclists operating on sidewalks, transit stops not located adjacent to traffic signals, and bus shelters blocking views of pedestrians from vehicles. Curb ramps recommended for upgrade are also shown on the concept drawings provided in Appendix J.

Lastly, marked crosswalks on Franklin Avenue are located only at signalized intersections, resulting in numerous intersections that do not have pedestrian crosswalks, some of which have high pedestrian volumes. There are long distances between these perceived crossings (marked crosswalks), as well as long distances between perceived safe (signalized) crossings. Negotiating undivided, four-lane roadways at uncontrolled locations can prove challenging and uncomfortable for pedestrians. Some of the instances described above are shown in Figure 11.

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3 Bicycle Level of Service is a metric for measuring the quality of the bicycling experience. Unlike motor vehicle level of service which measures motorists delay, BLOS measures bicyclists comfort traveling on the roadway with or adjacent to motorized traffic. The model is sensitive to traffic volumes and speeds, space, separation from traffic, and the presence of trucks or other heavy vehicles. Further discussion of the model can be found in the 2010 Highway Capacity Manual.

2.4.4 Transit Rider

The stretch of Franklin Avenue from 11th Avenue to Cedar Avenue is home to many Native American housing projects and some related businesses and social services. The #2 bus route runs on Franklin Avenue, although it is not a frequent-service route with average headways of 15 minutes. Due to the narrow sidewalks, there are few transit stop amenities (shelters, benches, etc) on the corridor. Transit stops are located throughout the corridor at signalized and unsignalized locations.

2.5 Crash History

The Minnesota Department of Transportation (MnDOT) analyzed crashes on Hennepin County’s roadway system between 2005 and 2009 while developing the Hennepin County Road Safety Plan (completed in 2011). Data specific to Franklin Avenue is reported below.

The expected crash rate (crashes per million vehicle miles traveled) along the Franklin Avenue is 5.6, with a critical crash rate of 6.0. The critical crash rate, which is statistically derived, serves as a screening measure to identify locations where the number of crashes is higher than expected for a given road type, thereby demonstrating a safety problem. Franklin Avenue’s actual crash rate from 2005 to 2009 was 15.0, over 2.5 times higher than the critical crash rate of 6.0.

The Hennepin County Road Safety Plan includes suggested treatments to address these types of safety issues, including the addition of confirmation lights to traffic signals. This treatment would allow a law enforcement officer sitting on the opposite side of an intersection to tell when a light has turned red and a vehicle has run the red light. Intersection crashes were particularly prevalent from Nolcett Avenue to 11th Avenue and Bloomington Avenue to Minnehaha Avenue. The County Road Safety Plan also suggested adding two-way left turn lanes to reduce rear end crashes on the western end of the corridor.

The Minneapolis Pedestrian Master Plan reviewed pedestrian crashes to quantify primary causes of injury and death. Pedestrians were documented to be disproportionately at risk of injury or death in a crash within Minneapolis compared to other modes of travel. From the pedestrian plan – “Pedestrian crashes comprised approximately 4% of all reported traffic crashes in Minneapolis, but 25% of all crashes resulting in a fatality and 21% of all crashes resulting in a severe injury.” 68% of those crashes occurred within 15 feet of an intersection (crosswalk marked or unmarked). The proportion of crashes in the dataset determined the following crash types were predominant:

- 27% involved left turning vehicles
- 10% involved left turning vehicles
- Franklin Avenue was noted to be a high crash corridor within the entire Minneapolis system

Through the bike/walk program, the City of Minneapolis has been methodically counting non-motorized travel. The data set allows for the calculation of walking and bicycling volumes adjusted by season which allows for the calculation of non-motorized travel crash rates similar to motor vehicle crash rates. On January 15th, 2013, the City of Minneapolis Public Works Department published a citywide assessment of crashes for bicyclists. While generally, total bicycle crashes and bicycle crash rates have been declining in Minneapolis between 2000 and 2010, crashes have been found to be increasing on Franklin Avenue.

The report found four of the top ten crash intersections (bike/car crashes) are located on Franklin Avenue at (location [ranking]): Cedar (1), Nolcett Ave (5), Lyndale (6), Chicago (10). Franklin Ave saw the second highest number of total corridor crashes (205) of all Minneapolis roads between 2000 and 2010. The intersection with the highest number of bike/car crashes in Minneapolis was Franklin and Cedar Ave. S, with 20 crashes. A summary of the Franklin Avenue crashes from the 2013 report is included in Appendix B.

Source: Understanding Bicyclist-Motorist Crashes in Minneapolis, Minnesota Report
2.6 Existing Traffic Operations/Level of Service

Traffic operations or LOS for Franklin Avenue cross section concepts were assessed using traffic analysis software called SYNCHRO 7. Specifically, this software provided an estimated LOS along the street as well as at intersections. Data from the following sources were used in developing LOSs for Franklin Avenue concepts:

- The City of Minneapolis provided the project team with a SYNCHRO file from a traffic signal retiming project that was completed in 2011. This file was used as a base for estimating LOS for Franklin Avenue concepts. Traffic turning volumes used in the traffic analysis are from two sources: 1) 2011 data collected by the City of Minneapolis and 2) data collected at unsignalized intersections in March 2012.
- Timing of traffic signals along Franklin Avenue is coordinated with the City’s overall traffic signal network. Because the signals had been re-timed in 2011, current signal timing was used for this analysis. Should signal timing changes be considered in the future, timing should be optimized using SYNCHRO to increase traffic capacity throughout the Franklin Avenue corridor.

Existing LOS for motor vehicles along Franklin Avenue ranges from LOS A to F during morning and evening peak travel hours. The evening peak hours experience the worst traffic operations (more intersections and segments with LOS E/F) of the day. Existing traffic experiences high levels of delay particularly on the west end of the corridor near Hennepin Avenue and Lyndale Avenue and from I-35W to Minnehaha Avenue. Due to existing traffic operating at a level with high user delay, options for bicycle and pedestrian improvements were analyzed using existing traffic volumes. If the goal of this project was to improve future motor vehicle capacity in conjunction with bicycle/pedestrian features, the corridor will require an option to increase capacity such as an added lane or traffic diversion to another area of the City of Minneapolis to account for the potentiality of future motor vehicle traffic. This is predominantly an issue limited to the evening peak period from 4 to 6 pm.

Intersections currently operating at or below LOS E include (AM/PM LOS):

<table>
<thead>
<tr>
<th>Intersection</th>
<th>AM/PM LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyndale Avenue (E/E)</td>
<td>10th Avenue (C/F)</td>
</tr>
<tr>
<td>3rd Avenue (B/E)</td>
<td>4th Avenue to 5th Avenue (I-35W Overpass)</td>
</tr>
</tbody>
</table>

Segments currently operating at or below LOS E include:

<table>
<thead>
<tr>
<th>Segment</th>
<th>AM/PM LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hennepin Avenue to Lyndale Avenue</td>
<td>Lyndale Avenue to Blaisdell/LaSalle Avenue</td>
</tr>
<tr>
<td>Blaisdell/LaSalle Avenue to Nicollet Avenue</td>
<td>1st Avenue to 3rd Avenue</td>
</tr>
<tr>
<td>4th Avenue to 5th Avenue (I-35W Overpass)</td>
<td>Portland Avenue to Park Avenue</td>
</tr>
<tr>
<td>Chicago Avenue to 11th Avenue</td>
<td>17th Avenue to Cedar Avenue</td>
</tr>
<tr>
<td>13th Avenue to 15th Avenue</td>
<td>Cedar Avenue to Minnehaha Avenue</td>
</tr>
<tr>
<td>15th Avenue to Bloomington Avenue</td>
<td></td>
</tr>
</tbody>
</table>

Results of the SYNCHRO traffic analysis are provided in Appendix E – SYNCHRO – Existing AM/PM Peak Hours for both morning and evening peak hours. A summary table of LOS is provided in Appendix H – LOS Option Summary.

3 Franklin Avenue Feasibility Assessment

Franklin Avenue has high traffic volumes for bicyclists, pedestrians, and motorists throughout the corridor. As traffic increases throughout the area, more commuters are likely to take alternative modes of transportation, including biking, walking and using public transportation. Franklin Avenue is a popular bicycle commuter street and local businesses are interested in making the corridor more pedestrian and bicycle friendly.

3.1 Feasibility Assessment Approach

The constrained environment—that is buildings very close to the sidewalks and street—along Franklin Avenue means changes to rebalance the multi-modal functionality of the street will require either:

1. shifting of single occupant vehicle trips to alternative modes or routes or
2. major reconstruction to widen the roadway to add capacity.

In an effort to avoid major property acquisitions and related community impacts, as well as to control project costs, this study has focused on cross sections that use only the space within the existing curb lines. This starting point requires consideration of tradeoffs given the constrained right of way that is available. These tradeoffs will potentially include one or more of the following: changes to parking regulations; addition of bike lanes; modifications to signal timing, and/or changes to lane width to achieve a balance between safety and mobility for all modes of travel.

Improvements to the pedestrian realm adjacent to the corridor, adjustments to signal timing, and other improvements which are not directly tied to the cross section decision making are considered separately in this study.

3.1.1 Evaluation Goals and Metrics

To assess potential alternatives it is necessary to define the primary evaluation goals and metrics which will result in the selection of a preferred alternative which will achieve the multi-modal balance desired. The goals are consistent with views expressed by the community and with the Hennepin County Complete Streets policy. The metrics require a distinction between quality of service (comfort) and LOS (delay) traffic engineering concepts. As discussed in section 3.1, it is a necessary outcome to increase delay to motorists to some extent to shift space and time to other modes of travel to meet the objectives of this feasibility assessment. The existing roadway design and operations prioritize the convenience (minimized delay) of motorists over other travel modes. The result of this outcome is the documented reductions in safety and comfort for all modes of travel.

Complete Streets Goals:

- Maximize safety and comfort for all modes
- Provide continuous bicycle facility accommodations
- Minimize reductions in motor vehicle LOS which may result in unstable traffic flow (LOS E, F) while considering potential for mode shift and route shifting by motorist
- Improve community livability measures—traffic calming, safe streets, attractive streets, on-street parking, and pedestrian friendly environments which support commercial thoroughfares and redevelopment
- Develop a plan that balances the regional and local mobility functions Franklin Avenue serves

Evaluation Metrics:

- Bicyclist safety and comfort is highest with separated facilities (i.e. bike lanes), lower speed traffic, and continuous facility types. Modest improvements in safety and comfort can be achieved with improved designs for shared travel space (priority shared lanes, advisory shared lanes).
- Pedestrian safety and comfort crossing streets is highest where crossings of streets are shortened (reductions in travel lanes) and where uncontrolled crossings can be split into two-stage crossings with median refuges. Pedestrian comfort is highest walking along streets with slower traffic and greater separation from traffic.
- Motorist safety and comfort is highest on streets with separate turn lanes which reduce friction and crashes. Additional safety and comfort is highest where conflicting movements are eliminated with protected signal phasing and pedestrian crossings are simplified to reduce driver workload scanning for pedestrians.
- Convenience for all modes is highest when delay is minimized.
- Livability goals are met when the street design meets the expectations of the community
3.2 Possible Roadway Modification Strategies

The following briefly describes a number of strategies considered for reallocating roadway space between the existing curb lines (pedestrian travel along the roadway is considered separately):

Road Diets: A road diet typically reduces the number of travel lanes along a road to provide space for pedestrians and bicyclists and/or to create space to provide dedicated turn lanes for motorists where none previously existed. Where road diets are implemented to incorporate dedicated turn lanes, traffic safety is improved as rear end, angle crashes, and sideswipe crashes are reduced. Pedestrian safety can be improved through the provision of shortened street crossings and/or the provision of pedestrian refuge islands. Lastly, the removal of through travel lanes typically provide traffic calming throughout a corridor through reduced top end travel speeds while generally providing minimal change to average travel speeds and travel times. In some circumstances, road diets can reduce motor vehicle capacity during peak traffic periods where the quantity of through traffic exceeds the capacity of the remaining through travel lanes.

Wide Outside Lanes: Wide outside lanes are lanes that are at least 14 feet in width to allow most motorists sufficient space to pass bicyclists without having to change lanes. However, unlike bicycle lanes, or enhanced shared lanes, they have not been found to improve bicyclist safety and they typically decrease comfort where wider lanes contribute to higher motorists operating speeds.

Marked Shared Lanes: Shared lane markings increase the safety for bicyclists by marking an appropriate location within a shared (with motorists) travel lane to ride to maximize their visibility. They are typically spaced at intervals of 250 feet and may be supplemented with Share the Road or Bikes May Use Full Lane signs. They have been found to reduce wrong way riding, but have had mixed results encouraging bicyclists to operate as intended on higher volume, multi-lane roadways.

Bicycle Lanes: Where road diets add bicycle lanes, safety and comfort are improved for bicyclists as they are provided space to operate at their own, typically slower traffic speeds. During peak periods, bicycle lanes allow bicyclists to filter past stopped traffic minimizing their delay. During non-peak periods, bicycle lanes reduce delays to motorists by creating space for slower moving bicyclists to operate. The provision of bicycle lanes have proven to increase comfort (in this case to BLOS “A”) by allowing bicyclists to operate independently of motorized traffic reducing concerns of being rear ended or sideswiped by motor vehicles. Bicycle lanes improve safety by reducing wrong way bicycle riding and sidewalk bicycle riding, two of the most common contributing factors to bicycle crashes in urban areas. The addition of bicycle lanes also improves pedestrian comfort by increasing the separation between moving motor vehicle traffic and pedestrians.

Buffered Bicycle Lanes: Buffered bicycle lanes increase the safety and comfort for bicyclists by increasing their separation from adjacent motorized traffic. They likewise increase the comfort for pedestrians. Buffered bicycle lanes have been found to increase rates of bicycling and achieve greater reductions in sidewalk riding than standard bicycle lanes5.

Wide Outside Lanes: Wide outside travel increase the space for bicyclists to operate within a shared lane of motorized traffic. Wide outside lanes are lanes that are at least 14 feet in width to allow most motorists sufficient space to pass bicyclists without having to change lanes. However, unlike bicycle lanes, or enhanced shared lanes, they have not been found to improve bicyclist safety and they typically decrease comfort where wider lanes contribute to higher motorists operating speeds.

Enhanced Shared Lanes: An enhanced shared lane (or priority shared lane) is a treatment whereby a shared lane marking is painted within the center of the outside shared (with motorists) travel lane at intervals as frequent as 100 feet. Additional emphasis is provided by outlining the shared lane marking with dotted white lane lines and/or solid green color at a width of 5 feet to simulate a bicycle lane. This treatment has been found to increase rates of bicycling, to increase rates of bicyclists operating where designated, to reduce motorist aggression towards bicyclists and in some instances to reduce sidewalk riding7.

FRANKLIN AVENUE HENNEPIN AVENUE TO 20TH AVENUE: MOVING TOWARDS A COMPLETE STREET FEASIBILITY ANALYSIS

Figure 13 - Road Diet with 10’ Through Lane. 9’ Left Turn Lanes and 5’ Bicycle Lanes

Figure 14 - Marked Shared Lane

Figure 15 – Priority Shared Lane on Bryant Avenue, Minneapolis

5 Road Diets are a proven safety countermeasure improving safety for all modes of traffic by reducing crashes on average 29%. http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_22_013.htm

6 http://www.bicyclexcelalliance.org/files/MODE%20SHIFT%20REPORT.pdf

Advisory Bicycle Lanes: An advisory bicycle lane is a treatment whereby a dashed shoulder is painted on the right edge of a wide outside shared travel lane with motorists, and typically involves removal of the center stripe. The treatment is most common where the existing travel lanes are 13 feet to 14 feet. This width allows marking of a continuous dotted lane line marked 4 to 6 feet from the right edge of the lane to create a space for bicyclists to feel comfortable operating similar to a bicycle lane. Motorists are allowed to encroach within the shoulder as necessary to pass other motorists, but must first yield to bicyclists operating within the lane. The markings encourage motorists to the stay to the left of the dashed line with the exception of wider vehicles which are typically trucks and buses. This increases the comfort for bicyclists operating on roadway and preserves space for bicyclist to filter past stopped or queued traffic. Research has found this treatment to increase overall safety for all road users, increases rates of bicycling, increases rates of bicyclists operating where designated, and reduces motorist aggression towards bicyclists and in some instances to reduce sidewalk riding indicating it may be preferable to a traditional wide outside lane. This treatment has thus far been typically applied on lower volume, two lane roadways (<6,000 ADT) within the United States so its application on Franklin should be monitored post implementation for its effectiveness. This is considered an experimental treatment by FHWA as it is a new application without guidance in the 2009 MUTCD.

8-Foot Two Way Left Turn Lanes (TWLTL): Eight-foot center turn lanes are less common but have been shown to be a successful interim safety and capacity improvement countermeasure while agencies work towards other roadway improvements including widening of the roadway.

Pedestrian Refuge Islands: Pedestrian refuge islands are a proven pedestrian safety countermeasure on multi-lane roadways with higher volume traffic such as Franklin Avenue. Pedestrian refuge islands allow pedestrians to make two stage crossings which typically increase the availability of safe crossing opportunities which in turn reduces risky crossing behaviors by pedestrians increasing their safety. Additional measures at uncontrolled crossings include the provision of advanced stop lines supplemented with Stop Here for Pedestrian Signs located 20-50 feet in advance of the pedestrian crossing to reduce multiple threat crashes.

Pedestrian Curb Extensions: Pedestrian curb extensions are another effective measure for improving pedestrian safety as they shorten pedestrian crossing distances, improve sight lines between motorists and pedestrians, prohibit illegal parking close to crosswalks, and slow the speed of turning motorists. The use of curb extensions requires the presence of space to allow full time parking. Curb extensions may also serve as locations to locate transit stops creating additional space for patron amenities (shelters, trash cans, benches, etc) while improving transit service by minimizing delays associated with merging into traffic.

10 Pedestrian crossing islands are a proven safety countermeasure improving safety for all pedestrians attempting to cross multiple lanes of traffic by reducing crashes on average 29%. http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_011.htm
As discussed in section 2.1, the study corridor can be broken into three distinct segments with three unique geometric cross sections.

Segment A – Hennepin Avenue to Columbus Avenue
Segment B – Columbus Avenue to Bloomington Avenue
Segment C – Bloomington Avenue to Minnehaha Avenue

To aid in the assessment of potential geometric changes, two operational schemes were evaluated for each segment. The first scheme (road diet) presumes a travel and/or parking lane is removed to create space for non-motorized improvements. The second scheme (optimization) presumes the existing number of travel lanes must remain; therefore improvements for non-motorized uses would be developed by lane narrowing or the application of a shared lane bicycle treatment.

4.1 Segment A – Hennepin Avenue to Columbus Avenue

The portion of Franklin Avenue between Hennepin Avenue to Columbus Avenue is currently 48-feet wide with four 12-foot lanes allocated to motorists’ travel during peak periods. During off peak periods, parking is permitted from Hennepin Avenue to Columbus Avenue without parking between Blaisdell/LaSalle Avenue and Nicollet Avenue. Parking demand is highest on the west end of the corridor adjacent to higher density residential units and Lyndale Avenue commercial activity.

Within this segment significant east and westbound motor vehicle demand exists to access the I-35W interstate at 5th Avenue. This demand creates a unique bottleneck within the corridor as there are high volumes of eastbound left turns from the inside through lane which require separate phasing at 5th Avenue to access northbound I-35W. Due to signal timing prioritization and coordination for north/south travel, this separate phasing combined with the high demand results in traffic queuing east and west of 5th Avenue increasing delay to travelers throughout the corridor during peak periods.

4.1.1 Lane Diet with Parking Removal on Both Sides

Narrowing the existing inside travel lanes would provide space for either a TWLTL or a flush or raised median. This option would include two narrowed lanes (from 12-foot to 10-foot lanes) of traffic in each direction maintaining existing traffic flows. The outside lane in each direction would be designated as a bike priority lane, which would encourage bicyclists to feel comfortable occupying the middle of the travel lane. A TWLTL or a flush median would be developed and all parking would be removed, reducing lane weaving by motorists. Parking is presently prohibited between Blaisdell/LaSalle Avenue and Nicollet Avenue. This option would increase traffic capacity throughout the corridor and generally improve safety for all modes. The marking of a green priority lane will likely improve the comfort of bicyclists traveling in the lane but may not be effective during peak traffic periods resulting in continued sidewalk riding. It is anticipated that traffic speeds would also increase due to the reduction in friction in the roadway by stopped, left turning motorists and parked vehicles.

A combination of a road diet with narrowed travel lanes would allow parking along one side of Franklin Avenue and add a TWLTL between Hennepin Avenue and Columbus Avenue. Designated bike lanes in each direction would be provided. A single travel lane would be maintained in each direction. Permanent parking would be allowed along eastbound Franklin Avenue. This would accommodate most of the parking demand, although some vehicles may have to park on side streets. Parking restrictions would be eliminated allowing residents to park their vehicles within the parking lane even during peak periods of traffic. Parking is proposed for the eastbound direction (south side) to reduce the likelihood and severity of potential dooring crashes. Slower bicyclists will be at greatly reduced risk of being struck by opening car doors than faster moving downhill bicyclists. At locations with full time parking there may be additional opportunities to provide curb extensions to shorten pedestrian crossings. At intersections with no left turn lanes or low left turning traffic volume, there may be opportunities for pedestrian refuge islands. Sub-iterations of this option would widen the travel lanes to the

4.1.2 Lane Diet with Parking Allowed Off Peak on Both Sides

Narrowing the existing inside travel lanes would provide space to widen the outside lane to 14 feet. The widened outside lane would create wide bike lanes available in off peak hours adjacent to parked vehicles. During peak hours the wider outside lane would increase the comfort for bicyclists. The success of this approach to improve bicycle travel and provide arterial traffic calming would hinge on the parking lane being more highly utilized than it is at present throughout the corridor. It would also require special pavement markings and signs to which may minimize the treatments effectiveness. Travel lanes which change use during peak periods are in use in Minneapolis on 1st Avenue where parking is restricted adjacent to the cycle track during peak periods. Bicycle comfort may be degraded and traffic calming may not be realized with widened outside lanes during peak hour periods. This cross section was determined to have potential for a limited portion of Franklin where parking in higher demand near Lyndale and Hennepin Avenues.

4.1.3 Road Diet with Parking Removal on One Side

A combination of a road diet with narrowed travel lanes would allow parking along one side of Franklin Avenue and add a TWLTL between Hennepin Avenue and Columbus Avenue. Designated bike lanes in each direction would be provided. A single travel lane would be maintained in each direction. Permanent parking would be allowed along eastbound Franklin Avenue. This would accommodate most of the parking demand, although some vehicles may have to park on side streets. Parking restrictions would be eliminated allowing residents to park their vehicles within the parking lane even during peak periods of traffic. Parking is proposed for the eastbound direction (south side) to reduce the likelihood and severity of potential dooring crashes. Slower bicyclists will be at greatly reduced risk of being struck by opening car doors than faster moving downhill bicyclists. At locations with full time parking there may be additional opportunities to provide curb extensions to shorten pedestrian crossings. At intersections with no left turn lanes or low left turning traffic volume, there may be opportunities for pedestrian refuge islands. Sub-iterations of this option would widen the travel lanes to the
Hennepin County desirable minimum of 11-feet by designating the center turn lane as continuous 8 or 9 foot flush median. Turn lanes could be added at intersections with parking restrictions to maintain consistent travel lane widths and to allow left turn lanes to be added at key intersections. This cross section was determined to have potential throughout the segment.

Figure 22 - Road Diet with Parking Hennepin Avenue to Columbus Avenue

4.2 Segment B - Columbus Avenue to Bloomington Avenue

The portion of Franklin Avenue between Columbus and Bloomington Avenues is 54 feet in overall width with curb extensions constructed at numerous locations restricting the curb to curb width to 40 feet. There is currently one-lane of traffic in each direction with a TWLTL. Existing curb extensions allow for shorter pedestrian crossings. Parking is provided on both sides of the street.

Figure 23 - Existing Road Section Columbus Avenue to Bloomington Avenue

4.2.1 Parking Removal on One Side

This road diet option would remove parking and curb extensions on one side of the street, while keeping one travel lane for motorists in each direction along with a TWLTL. Designated bike lanes would be provided in both directions of travel with space for a buffer to the parking lane or travel lane. Based on feedback from the public, it is unlikely that support would exist to completely remove parking and curb extensions from one side of the roadway through the commercial district so this concept was not pursued further.

4.2.2 TWLTL Removal

Removing the TWLTL between Columbus and Bloomington Avenues would create space to add designated buffered bike lanes. Parking lanes and curb extensions would remain in place. This option would allow the travel lanes to meet the Hennepin County desirable minimum of 11-feet through the segment. This option was determined to warrant further consideration.

4.2.3 Lane Diet

Narrowing the existing travel lanes would provide space for bicycle lanes on both sides of the street while maintaining existing parking and curb extensions. This option was determined to warrant further consideration as part of a uniform road diet traffic analysis as this would match the cross section of Franklin Avenue east of 21” Street South in Seward.

Figure 24 - Narrowed Lanes Columbus Avenue to Bloomington Avenue

4.3 Segment C - Bloomington Avenue to Minnehaha Avenue

4.3.1 Parking Removal on Both Sides

This road diet option would remove parking on both sides of the street, while keeping two travel lanes for motorists in each direction. Designated buffered bike lanes would be provided in both directions in place of the parking lane. Based on feedback from the public, it is unlikely that support would exist to completely remove parking so this concept was not pursued further.

4.3.2 Road Diet

Removal of one travel lane in both directions would result in a roadway cross section which would more consistently match the cross sections to the east and west of this segment. The removal of a travel lane would also allow for the potential provision of parking along the interior adjacent to the median which is consistent with the goals of the community in this area to activate this space. This cross section was determined to have potential throughout the segment.

Figure 25 - Travel Lane Removal Minnehaha to Bloomington Avenue
4.4 Operational Assessment of Typical Section Combinations

4.4.1 Road Diet Option

It was determined that the combination of segment options which removed a travel lane would allow assessment of a scenario which would have the maximum impact on existing roadway operations. This option is deemed the "road diet" option as it provides a continuous system of bicycle lanes through the entire 2.3 mile corridor. This option minimizes parking removals to the maximum extent feasible and addresses the existing safety concerns by providing left turn lanes on the west end of Franklin Avenue which minimize sudden lane changes and weaving through the corridor. It will also likely result in slower operating speeds during non-peak hours.

The four-lane section of roadway between Hennepin Avenue and Columbus Avenue (Segment A) would be reduced to three lanes, one lane in each direction with a two-way left turn lane (TWLTL). Full time parking would be allowed on one side of the roadway (figure 23). Between Columbus Avenue and Bloomington Avenue (Segment B), the existing three-lane section of roadway would be road dieted to provide buffered bicycle lanes by removing the TWLTL (no figure). From Bloomington Avenue to Minnehaha Avenue (Segment C), the existing four lane section would be reduced to two lanes, one lane in each direction with buffered bike lanes added (figure 26). Pedestrian crossings would be improved throughout the corridor with crossing islands where appropriate and feasible.

A traffic assessment was developed for this road diet scenario. Results of the SYNCHRO traffic analysis are provided in Appendix F – SYNCHRO – Road Diet PM Peak Hour for the evening peak hour. The road diet SYNCHRO results account for TWLTL removal from Columbus Avenue to Bloomington Avenue to assess a potential maximum constrained traffic scenario. AM peak hour was not analyzed since traffic volumes are highest during the PM peak hour.

Analysis of this option indicates that this full road diet would result in the following:

- Improvement in bicyclist safety and comfort through the installation of continuous bicycle lanes
- Improvements to pedestrian safety and comfort achieved through traffic calming, travel lane reductions, and provision of pedestrian refuge islands at select locations
- Improvements to motorist and bicyclist safety through the installation of a continuous TWLTL within Segment A
- Potentially some degradation of peak hour motorist mobility (LOS ranges from A to F) with these particular intersections operating at or below LOS E:
  - Lyndale Avenue
  - 3rd Avenue
  - 5th Avenue
  - Portland Avenue
- Need to restrict all on-street parking between Hennepin Avenue and Columbus Avenue on one side of the roadway, thereby increasing parking demand on side streets
- Degradation of comfort and mobility for motorists with removal of TWLTL in segment B.

4.4.2 Road Diet and Lane Diet Option

An alternative option maintains the existing TWLTL through segment B and adds bicycle lanes by narrowing lanes for motor vehicle travel. This option would not impact existing motorist mobility (figure 25) and comfort by maintaining the left turn lanes. Analysis of this option indicates this combination of a road diet in Segments A and C with a lane diet in Segment B would remove the intersection of 10th Avenue from the road diet list of intersections with degraded LOS.

4.4.3 Cross Section Alternatives between 4th and Columbus

Based on the results of the road and lane diet traffic analysis, it was determined it would be necessary to consider further modifications of the cross section between 4th Avenue and Columbus Avenue to accommodate peak motor vehicle flows to I-35W at 5th Street. The following cross sections were determined to have the most potential to satisfy the multi-modal objectives for the corridor without degrading mobility (by maintaining 4 travel lanes) during peak periods through this roadway segment.

Alternative 1 – Priority Shared Bike Lane, 4 Lane Cross Section

Alternative 2 – Widened Sidewalks, 4 Lane Cross Section

Alternative 3 – Advisory Bicycle Lanes, 4 Lane Cross Section
alternative 1 has the ability to increase mobility and potentially improve safety for motorists as it adds a dedicated left turn lane for the eastbound approach to 5th Street (I-35W access) which will reduce or eliminate sudden lane changes by motorists who desire to proceed westbound but get delayed by left turning motorists in the existing interior lane. Motorists who change lanes at the last second or quickly often contribute to sideswipe, rear end, or angle crashes. In particular they can be a discomfort or danger to bicyclists as the motorists may not see the bicyclists before entering the bicyclists operating space. This cross section was not acceptable to Hennepin County engineers as the left turn lane at eight feet does not meet county lane width standards. This cross section minimally improves bicyclist conditions by reducing or eliminating the sudden lane change operation of motorists and through the provision of the priority shared lane.

Alternatives 2 through 4 maintain the existing 4-lane cross section therefore the mobility for motorists would remain unchanged from existing conditions. Option 2 would increase the sidewalk widths and likely result in increased sidewalk bicycle riding by those bicyclists not comfortable operating in heavy or high speed traffic. It also would promote sidewalk bicycle riding by not providing a comfortable on-roadway option. Option 3 would potentially improve bicyclist conditions but would potentially be confusing for motorists on a higher volume roadway. The advisory bicycle lane treatment has thus far only been deployed on low volume roadways (less than 6,000 ADT) in the United States. Alternative 4 develops an eastbound buffered bicycle lane complemented with a westbound priority shared lane. For eastbound bicyclists, the buffered bicycle lane would offer increased protection and comfort compared to the existing shared lane situation or alternatives 2 or 3 on the approach to 5th Street as bicyclists would have their own space in the buffered bicycle lane and should not encounter lane changing motorists. For the westbound direction, it is important to note bicyclists would prefer to have their own separate operating space due to the high volume of motorist traffic. During periods of peak traffic, bicyclists may not find the priority bicycle lane provides much benefit as the lane may be filled with queuing traffic. This is likely to result in continued sidewalk operation during peak periods.

4.4.4 Traffic Operations Analysis Conclusion

A non-uniform cross section is likely to improve the multi-modal balance in the corridor without degrading motor vehicle mobility below existing conditions. The approach would require application of a road diet for segments A and C, lane diet for segment B with a four-lane minimum cross section in segment A between 4th and Columbus.

Analysis of this option indicates that this option would result in the following:

- Improvement in bicyclist safety and comfort through the installation of bicycle lanes for a majority of the corridor
- Improvement in bicyclist comfort at across the I-35W crossing
- Improvements to pedestrian safety and comfort achieved through traffic calming, travel lane reductions, and provision of pedestrian refuge islands and curb extensions at select locations

- Improvements to motorist and bicyclist safety through the installation of a continuous TWLT or median for a majority of the corridor
- This option provides enough on-street parking to meet the demand, but may result in some additional side street parking close to Lyndale Avenue where there was relatively equal parking demand on both sides of the street
- There is relatively little change to existing traffic operations based on the LOS standards with the following intersections operating at or below LOS D during peak periods:
  - Hennepin Avenue 3rd Avenue
  - Lyndale Avenue 10th Avenue
- Some turning movements would need to be changed from permitted to protected and from leading to lagging turns to improve traffic flow.
- In the Cedar Avenue/Minnehaha Avenue vicinity, some turning movements would need to be restricted and turning lanes extended to promote intersection traffic flow and to prevent backups.
- Improvements for bicyclists between 4th and Cedar would vary depending upon the ultimate cross section chosen.

5 Public and Agency Engagement

5.1 Public Engagement

5.1.1 Public Information Meeting—May 7, 2012

A public information meeting was held on May 7, 2012 from 7:30 – 9:00 p.m. at the Phillips Community Center at 2323 11th Avenue South in Minneapolis. Thirty-two people signed in at this meeting. This intent of this meeting was to gather public input for a preliminary engineering plan for this segment of Franklin Avenue and to build public and jurisdictional support for preliminary designs to more quickly implement projects as funding becomes available.

The meeting included a brief description of existing conditions along Franklin for motorized traffic and for bicycling and walking and a presentation of preliminary concepts of multi-modal improvements to be investigated further. The meeting primarily focused on small group discussions, aimed at developing a shared corridor vision and discussion of specific ideas that the consulting team would explore in the next phase of the planning effort. The agenda for this meeting is provided below:

**FRANKLIN AVENUE**
Moving Towards a Complete Street

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<td>7:30 PM - 7:45 PM</td>
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Visit the project website for updates: www.bikewalk2012.com

Figure 26 - Agenda from May 7, 2012, Franklin Avenue Public Information Meeting
Comments provided by members of the public at the meeting are summarized below:

- **Existing Conditions**
  - Parking on portions of Franklin Avenue is unnecessary (e.g., between I-35W and Nicollet Avenue)
  - Signal timing along entire corridor should be revisited, but especially at 5th Ave. (access to interstate) and at Hiawatha Avenue
  - Much of the traffic on Franklin Avenue during peak periods is attempting to go either north or south; providing left turn lanes would assist with these movements

- **Safety**
  - Providing left turn lanes would improve both bicyclist and motor vehicle safety
  - Police enforcement during peak periods should be increased, especially focused on illegal actions of motor vehicle drivers towards bicyclists
  - Bicyclist safety is a major problem on Franklin Avenue between I-35W and Chicago Avenue
  - Ability of pedestrians to cross the street at bus stops should be improved
  - Address crime that takes place along Franklin Avenue

- **Reactions to bicycle concepts presented**
  - Support for road diet, including removal of one motor vehicle traffic lane in each direction; the addition of bicycle lanes; narrower lanes for vehicles; and parking removal (both altogether and on one side)
  - Less support for shared lanes for motor vehicles and bicycles
  - Concern expressed over removing lanes of motor vehicle traffic at major intersections (e.g., Lyndale, Nicolet, Bloomington Avenues); turn lanes should at least be provided
  - Provide left turn lanes for use by both vehicles and bicycles
  - Bicycle lanes should be continuous along entire corridor
  - Enthusiasm for the NACDI plan shown in Figure 2

- **Reactions to pedestrian concepts presented**
  - Accessibility (i.e., compliance with ADA) is important
  - Sidewalks should be wider, particularly between 5th and Chicago Avenues
  - Support for pedestrian refuges, additional marked crossings, and curb extensions in street

5.1.2 Public Information Meeting—July 18, 2012

The second public information meeting for Franklin Avenue was held on July 18th, from 6:30-9:00 p.m. at Hope Community, Inc. at 611 East Franklin Avenue in Minneapolis. Twenty-four people signed in. The focus of the meeting was the possible bicycle and pedestrian improvements that had been developed by the project team since the first public meeting. Similar to the first public meeting, those present dialogued about Franklin Avenue

Comments provided by members of the public at the meeting are summarized below:

- **Reactions to Franklin Avenue cross sections presented**
  - Mixed reactions to the green priority bicycle lanes; some believed that these lanes will not work, because the paint will wear off and the police may confused as to what the green lanes mean for bicyclist and motorists in shared lanes. Others expressed that there will be confusion about how to use the green lanes by motorists and bicyclists. However, others expressed that the green paint is needed if shared lanes are provided as a solution for bicyclists.
  - Curb extensions can be difficult for bicycles to maneuver if constructed into the lane and during winter
  - street center medians would become snow piles
  - Keep bicyclists to the inside of lanes at intersections, rather than to the right to minimize exposure to right turning vehicles
  - Dashed lines at intersections works well for bicyclists mixing with turning traffic

- **Motorized vehicle issues**
  - Concern with 8’ TWLTL, especially truck use of these narrow lanes
  - Concern over the number of left turns onto I-35W
  - Concern over motorists backing up in westbound direction of Franklin from the I-35W bridge to the east
  - Consider use of left turn lanes between 47th and Portland Avenues to better manage traffic, especially left turns

- **Pedestrian issues**
  - Why is the city not obligated to bring sidewalks into compliance with ADA? What options are there for widening sidewalks?
  - Marked pedestrian street crossings are too far apart

- **Parking issues**
  - Cars should park on the uphill sides of Franklin Avenue on either side of Lyndale Avenue to eliminate risk of bicyclists being hit by opening door from parking motorist; provide a wide bike lane for going downhill
  - Providing space for vehicle parking should not compromise bicyclist safety by removing space for bicyclist to operate
  - Parking is important for those living on Franklin Avenue; if not provided on Franklin Avenue, residents will park in area neighborhoods
  - Removal of parking would move drug dealers into neighborhoods
  - There may be more demand for parking on Franklin Avenue than there presently seems, people don’t park on Franklin Avenue under present conditions for fear of their car getting hit
  - Support for removing parking in the vicinity of Lyndale Avenue

- **General/Other**
  - What concepts are politically viable?
  - Consider providing a ramp to access the 24th Avenue overpass of I-35W

5.1.3 Other Public Input

Members of the project team received public input on Franklin Avenue at events that focused on bicycle and pedestrian improvements for other streets within Minneapolis. Specifically, at a public meeting that focused on road diets for Park and Portland Avenues, a member of the public noted that one reason illegal drug sales are so prevalent in the vicinity of Franklin, Portland, and Park Avenues is because of direct and quick access to I-35W. It was also suggested that a three-lane configuration, rather than a five-lane configuration on the Franklin Avenue bridge over I-35W be considered.

Traffic calming has been used in some communities as a complementing strategy to other methods aimed at controlling illegal drug activity. In the case of Franklin Avenue, road and/or lane diets which slow traffic or the addition of protected signal phases on the Franklin Avenue bridge may complement other solutions aimed at reducing illegal drug activity.

6 Other Considerations

As design concepts for Franklin Avenue bicycle and pedestrian improvements continue to be refined, additional options will be considered at both intersection and along the street. Some refinements are relatively minor and could be implemented short term; others would require property acquisitions as well as considerable time and budget to implement. This section documents potential items that may be considered as with further development of Option 4.
6.1 Lyndale Avenue Bicyclist Behavior Video Analysis

A significant safety challenge exists for bicyclists and pedestrians along the east side of Lyndale Avenue between Franklin Avenue and the access ramp to Highway 52/Loring Greenway Trail Connection. During this stretch of roadway, Lyndale Avenue transitions from an urban, undivided arterial to a divided, limited access highway (State Route 52) north into Minneapolis. North of Highway 52, the Loring Greenway provides bicyclist parallel access. South of Highway 52, bicyclists have no specific provision of travel on Lyndale so they are presently utilizing the street and sidewalk to travel with and contra-flow to traffic. The existing sidewalks are relatively narrow (8-12 feet) when considered within the context of utility poles, bicycle and pedestrian traffic, and sidewalk café serving Rudolph’s patrons. In an effort to mitigate conflicts, signs have been posted prohibiting bicycle riding on the sidewalk. Given the proximity to desired destinations and bicycle routes and the present terminus of the bicycle trail at Highway 52, it is clear bicyclists are going to continue to have a strong desire to continue riding along this portion of the divided Lyndale towards Franklin Avenue where they can transition to the roadway system.

A video camera was mounted to observe bicycle and pedestrian traffic to quantify the direction and volumes of each respective user. The parking along this stretch was also observed to determine occupancy and turnover.

6.1.1 On-Street Parking Evaluation

A total of approximately eight on-street parking spaces are available on the east side of Lyndale Avenue, between Franklin Avenue and the Loring Greenway. On the south end of the block adjacent to Rudolph’s, there are approximately three parking spaces with signs limiting parking to one-hour parking from 8 AM to midnight. In the middle of the block there are two parking spaces with 15-minute parking limits from 7 to 10 AM adjacent to Dunn Brothers Coffee and Quiznos Subs. On the north end there are approximately three parking spaces with no time restrictions adjacent to multi-unit residential buildings. Parking on Lyndale Avenue is free at all times. Fifteen parking spaces are available off-street for the businesses in the middle of the block. The residential units have approximately twenty parking spaces in the rear.

Video recorded on Tuesday, April 17, 2012 was analyzed for 24 hours to determine on-street parking occupancy for the eight parking spaces on Lyndale Avenue. Over the 24-hour period, 44 vehicles stopped, with only 20 of these vehicles parked for longer than five minutes. Figure 29 illustrates length of time each vehicle parked on the street. Parking never filled capacity throughout the entire study period. Lengths of time for vehicles already parked at the beginning of the study period or still parked at the end of the study period are unknown.

6.1.2 Bicycle and Pedestrian Volumes

Volunteers with the Transit for Livable Communities performed counts of bicycles and pedestrians on the block between Franklin Avenue and Ridgewood Avenue from 4 to 6 PM on the following days:
- Wednesday, September 12, 2007
- Wednesday, September 10, 2008
- Tuesday, September 08, 2009
- Tuesday, September 14, 2010
- Tuesday, September 13, 2011
- Wednesday, September 14, 2011

Additional video analysis of the Tuesday, April 17, 2012 video addressed bicycle and pedestrian volumes from 4 to 6 PM. Both the TLC counts and video analysis categorized cyclists by direction and whether the cyclists used the sidewalk or the street. Signs facing north and south warn “No Bicycles on Sidewalk.” Figure 30 illustrates the range of bicycle and pedestrian volumes on Lyndale Avenue from the TLC counts and the volumes observed in the video analysis.

Most northbound cyclists traveled on the street in mixed traffic, while most southbound cyclists traveled on the sidewalk. All of the southbound users who traveled in the street in the video traveled against northbound vehicular traffic on the east side of the street. One of these cyclists was observed swerving into the road from the sidewalk to avoid a collision with a pedestrian. During the April video analysis, no outdoor seating occupied the sidewalk.
6.1.3 Recommendations

Given the safety concerns related to southbound bicyclists attempting to travel contra-flow with northbound vehicular and bicycle traffic on the roadway and the fact that the sidewalk is too narrow to safely share the Study Team recommends consideration of the following:

- Removal of the parking spaces to facilitate in the short term a flex post protected on-road bikeway up to Franklin Avenue
- Retiming of traffic signals and striping of bicycle boxes and/or bicycle crosswalks to allow bicyclists to transition to the proper side of Lyndale and Franklin Avenue
- Long term construction of a sidewalk level, two-way cycle track between Highway 52 and Franklin Avenue with consideration given to extending the cycle track to 22nd Avenue
- Development of system of wayfinding signs directing south to west bound cyclists bound for Franklin Avenue/Stevens Square/Ventura Village/Seward Neighborhoods to utilize Groveland Avenue in lieu of Lyndale to reduce bicycle volumes

6.2 Turning Lanes

Turning lanes and lengths may need to be adjusted in response to changed lane configurations to keep traffic flowing smoothly through the intersections along Franklin Avenue. Some changes may include:

- Adding a designated right turn lane from westbound Franklin Avenue to northbound Lyndale Avenue with turn overlap
- Update signal timing phasing for westbound Franklin Avenue to southbound Blaisdell Avenue to protected
- Restrict left turns from westbound Franklin Avenue to southbound 4th Avenue
- Implement dual, protected lefts from eastbound Franklin Avenue to northbound 5th Avenue
- Implement dual, protected lefts from Franklin Avenue in both directions onto Cedar Avenue
- Restrict right turns from westbound Franklin Avenue to northbound Cedar Avenue
- Restrict left turns from eastbound Franklin Avenue to northbound Minnehaha Avenue

6.3 Signal Timing

Signal timing throughout the corridor will need to be refined. Some signals will need to be retimed to accommodate intersection movements; this may impact the signal timing throughout the rest of the corridor. As design moves forward, signal timing will need to be verified with the City of Minneapolis. Leading pedestrian intervals are recommended as a uniform treatment throughout the corridor.

It may be desirable to consider the use of bicycle signals at the intersection of Lyndale and Franklin Avenues to transition bicyclists onto the roadway network.

6.4 Pavement Markings

Pavement marking will vary throughout the corridor based on the selected roadway cross sections. Creative solutions will be needed at signals to accommodate bicyclists and various turning movements. This may include “sharrows” to allow bicyclists to use the entire through lane or placing dashed marking to demonstrate lane sharing and to watch for bicyclists for turning movements and bus stops.
Additionally, pedestrian crosswalks should be marked at all signalized locations and consideration should be given to providing high visibility pedestrian crosswalks at uncontrolled locations which service higher volumes of pedestrians or connect transit stops. Marking of crosswalks at uncontrolled locations would be sufficient at locations where lane reductions result in pedestrians crossing no more than two through travel lanes with the one center or left turn lane. At locations where pedestrians would have to cross more than three travel lanes, it is recommended that an advanced stop line be utilized in conjunction with a rapid flashing beacon to meet MUTCD guidelines for marking crosswalks across higher volume, multiple threat conditions.

6.5 Curb Extensions/Truck Aprons

Curb extensions will be considered, particularly in areas with known pedestrian crossing issues, or where pedestrian visibility to approaching drivers is reduced. Curb extensions draw attention to pedestrians and slow right turning vehicles making turning vehicles more likely to yield to pedestrians attempting to cross the street. Where larger curb radii are required, it is recommended that an apron style design be considered which would discourage smaller trucks and passenger cars from turning across, but would allow larger trucks and buses to ride over them. The design of the truck apron must be such to distinguish it from the roadway, but not imply it is an extension of the sidewalk which might encourage pedestrians to stand on the apron. A photo example is shown above right. Locations currently being considered for curb extensions include:

- Southwest corner of Blaisdell and LaSalle Avenues
- Northeast corner of 3rd Avenue
- Northeast corner of 5th Avenue
- Midblock near Hiawatha Avenue

6.6 State Aid Variance

As demonstrated earlier in this report, sidewalks along Franklin Avenue, particularly west of Portland Avenue, present challenges to improvements. In addition to narrow sidewalks (less than 6 feet in width), these challenges include adjacent buildings, some with stairways, and utilities. These areas are shown in documentation provided in Appendix XXXX.

Sidewalk widening should be considered when possible. Additionally, sidewalk treatments for narrow sidewalks with obstructions, such as signposts or utilities should also be considered. Treatments such as curb ramps, particularly across the I-35W bridge over Franklin Avenue, and sidewalk reconstruction to bring sidewalks into compliance with the ADA should also be considered.

6.7 Sidewalk Treatments

As demonstrated earlier in this report, sidewalks along Franklin Avenue, particularly west of Portland Avenue, present challenges to improvements. In addition to narrow sidewalks (less than 6 feet in width), these challenges include adjacent buildings, some with stairways, and utilities. These areas are shown in documentation provided in Appendix XXXX.

6.8 State Aid Variance

The Minnesota State Aid for Local Transportation (MN SALT) office provides resources “to assist local governments with the construction and maintenance of community-interest highways and streets on the state-aid system”. For state funding to be used, the office has minimum design Rules that roadways must adhere to, however, the office also has authority to issue design variances in special cases.

Minnesota Administrative Rule 8820.9946 Minimum Design Standards, Urban; Reconditioning Projects requires a four-lane arterial with parking on one side to have a minimum total roadway width (from face-to-face of curbs) of 54 feet. On the west end of the project where a parking lane is proposed along eastbound Franklin Avenue, the total roadway width is 48 feet.

The proposed cross section option from Hennepin Avenue to 4th Avenue includes a 7-foot parking lane and would require a variance from Rule 8820.9946 based on total roadway width. The proposed lane widths in this section are within the minimum recommendations provided in the American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (10 foot minimum width) with the exception of the proposed 8 foot TWLTL.

The preferred road diet or “non-uniform option” designs propose a limited use of the 8-foot TWLTL from 4th Avenue to Portland Avenue (approximately 600 feet in length). This dimension is below AASHTO recommendations but is put forth as a short term recommendation to improve safety while maintaining or improving capacity until such time as traffic volumes reduce or the roadway can be widened.

In order to obtain variance to the design elements required by State Aid Operations Rules Chapter 8820, a request must be submitted to the MN SALT office. Requests are reviewed by a committee 4 times per year and are approved or rejected for design and construction. Requests for variance include a certified resolution from the responsible city council or county board, location map, roadway needs, comparison of design variance versus designing in accordance with the
Rule, cost impacts for the variance compared to providing minimum design requirements and other various items. A comprehensive list of items to be included in the request is in Appendix C—MN SALT Design Element Variance Justification Checklist.

6.9 Long Term Improvements

Some long-term improvements, including roadway widening would require property acquisitions. The existing bridge over I-35W has been identified by both the project team and the public as an obstacle in achieving a complete street along Franklin Avenue. This area experiences the highest traffic volumes within the study area, and is documented as a high crash location. This constrained bridge presents a major challenge in safely and efficiently accommodates vehicles, pedestrians, and bicyclists.

7 Development of Conceptual Designs

To assist in the review of options described in this memorandum, three alternative designs were developed to a 30% conceptual design level between Hennepin Avenue and 21st Avenue. These are included in Appendix J for review. The options were developed to allow Hennepin County, the City of Minneapolis, and the community to continue to work towards developing a consensus solution for the corridor.

The options are as follows:

**Option 1 – Road Diet/Lane Diet**
- Segment A – road diet described in section 4.1.3
- Segment B – lane diet described in section 4.2.3
- Segment C – road diet described in section 4.3.2

**Option 2A – Non Uniform Sections with alternative 3 between 4th and Portland (advisory bike lanes)**
- Segment A – road diet described in section 4.1.3 (modified by 4.4.3 alternative 3)
- Segment B – lane diet described in section 4.2.3
- Segment C – road diet described in section 4.3.2

**Option 2B – Non Uniform Sections with alternative 4 between 4th and Portland B (unbalanced bike and shared lanes)**
- Segment A – road diet described in section 4.1.3 (modified by 4.4.3 alternative 4)
- Segment B – lane diet described in section 4.2.3
- Segment C – road diet described in section 4.3.2

8 Summary/Conclusions

The Franklin Avenue corridor currently is experiencing higher rates of crashes for all modes of travel than are expected for this class of roadway. These challenges stem in part to the four-lane undivided cross section which is associated with higher rates of crashes for all modes of travelers in conjunction with operational pinch points which fall from a traffic mobility standpoint. The corridor does not provide an acceptable or consistent travel environment for pedestrians or bicyclists and is designed and operated to favor motor vehicle travel between Hennepin Avenue and Columbus Avenue.

The decision to move forward with corridor improvements within the existing constrained curb line of this street will require conscious consideration of the balance between:

- Providing a relatively high degree of motor vehicle mobility
- Improving multi-modal safety through the provision of narrower travel lanes, turn lanes, bicycle lanes, and/or crossing islands

It is our recommendation the City of Minneapolis and Hennepin County place the highest priority on improving multi-modal safety within the corridor. Rebalancing the roadway will address a number of community objectives to calm traffic, enhance the pedestrian experience, provide a safe place for bicycling within the roadway, and to improve the overall safety for all users along the roadway. Based on the assessment completed for this Feasibility Report, subsequent discussion with City and County Staff and the public, it is recommended that the improvements identified in this report be pursued as funding is available and consensus is developed working towards implementation of either option 1 or 2A, or 2B.

It appears there is potentially consensus for implementing the road diet in Segment C and for considering implementation of a road diet in Segment A up to 4th Street. Between 4th Street and Columbus it is less clear which alternative has consensus, but Option 2B has potential to strike a balanced approach.

It is recommended that consideration be given to implementing the lane diets proposed in Segment B as part of an evaluation strategy on the part of Hennepin County of roadway cross sections which combine minimum lane widths on arterials in commercial corridors. Sidewalk and curb ramp improvements should be implemented separately as soon as feasible to meet current ADA standards.

These improvements will require new pavement marking throughout the corridor, updated signing, and some signal timing updates. The use of narrow travel lanes will likely require design waivers from MnDOT and/or Hennepin County.

The signal timing will also need to be coordinated with the remaining Minneapolis system as it was only reviewed along Franklin Avenue for this assessment.

While this feasibility assessment focuses on remaining within the existing curb line, longer term solutions will need to be considered if it is desired to accommodate adjust curb locations along the corridor and/or to improve pedestrian and bicyclist accommodations which are presently substandard in many locations. Should any curb and gutter reconstruction be undertaken where curbside bicycle lanes are proposed, it is recommended the gutter be eliminated or narrowed to less than 12 inches to eliminate the gutter seam as a potential crash hazard. It is desirable on a roadway such as Franklin Avenue to provide continuous, separate bicycle facilities. Any improvements that would require widening the street will likely require property acquisition, but would better accommodate the full complement of transportation modes that use Franklin Avenue. Longer term, a wider bridge across I-35W between 4th and Portland Avenues should be considered when the bridge is scheduled for replacement or northbound access to I-35W should be relocated to another roadway where full range of access to the Interstate is desired.