

New Center Non-Motorized Transportation Plan

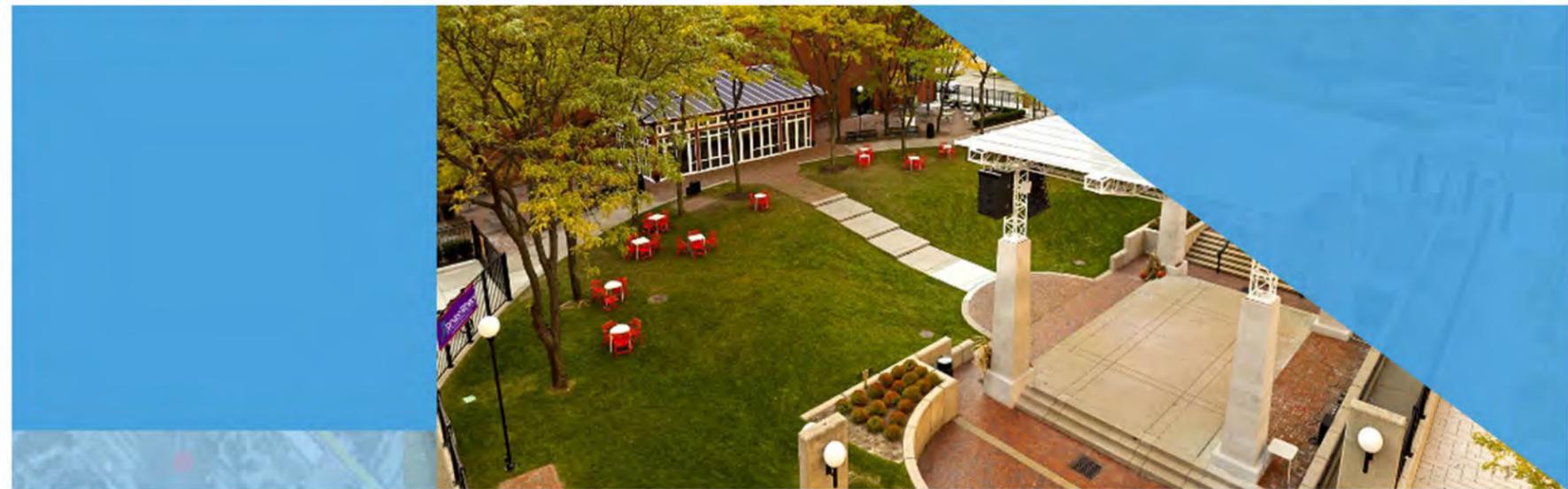


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Introduction

Overview

Detroit's Historic New Center is located 3.2 miles north of the central business district, and is generally bordered by the Ford Expressway (I-94) on the south, the Lodge Freeway (M-10) on the west, Euclid Avenue to the north and John R Street to the east and also includes the campus of Henry Ford Hospital. The New Center district was initially developed by the growing automobile companies in Detroit in the early 1920's, particularly General Motors and the Fisher Brothers, who located their headquarters opposite each other on West Grand Boulevard west of Woodward Avenue.

Adding to the creation of the neighborhood was the architectural firm of Albert Kahn Associates, WJR radio, Detroit Hardware, Dittrich Furs, Henry Ford Hospital and numerous others. With the growth of the auto industry at this business center came the creation of grand neighborhoods and local businesses.

In many ways, New Center reflects the changes that have occurred in Detroit over the past 90 years. The local leadership of the area has rested with the New Center Council since the late 1960's. While some businesses have left the area, the State of Michigan, Wayne State's "Tech Town", the College of Creative Studies, several new businesses, restaurants, and art and entertainment venues have entered the area and created a new life for New Center. Established residential neighborhoods like New Center Commons, Virginia Park and the New Amsterdam Historic District have been

saved and restored and loft style housing is being created from former industrial space.

With the re-generation of New Center and in anticipation of other non-motorized efforts such as the M-1 Rail and proposed rapid transit line, local stakeholders are hoping to improve the overall experience for pedestrians and bicyclists. The focus has also been placed on reconnecting the area to other parts of the city in sustainable ways, such as by rail, foot and bicycle.

This project involves the engineering analysis efforts required to prepare a detailed feasibility study for the proposed New Center Connector. More specifically the project intent is to determine the detailed feasibility, scope, construction and engineering costs, and phasing information for the following potential improvements:

- Converting Second Avenue from the current one-way status to two-way operation;
- Adding on-street bicycle lanes to all appropriate roadways; and
- Adding appropriate off-road greenways;
- Identification of potential linkages to other districts and non-motorized efforts.

The study area is generally bounded by Grand Boulevard to the north, Lincoln/Trumbull Avenue to the west, the I-94 Expressway to the south, and the I-75 Expressway to the east. The study area also includes a review of Trumbull Avenue due to the potential future connection to the Corktown-Mexicantown Greenlink at Martin Luther King Boulevard and new

developments proposed by Henry Ford Health Systems (HFHS) south of the hospital campus.

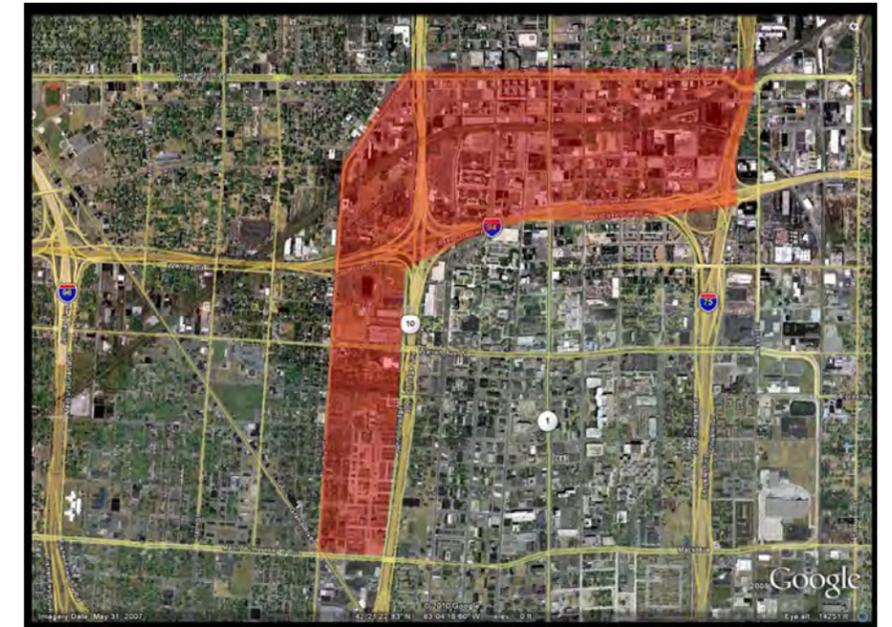


Figure 1: New Center Non-motorized Transportation Plan Study Areas

Benefits of Non-motorized Facilities

A complete and accessible non-motorized system provides numerous benefits to users and nonusers alike. Just as a properly planned and maintained road network impacts more than a driver's experience, a proper non-motorized system can improve general health, increase accessibility to the disadvantaged, promote a cleaner environment and weave together a community.



Functional Benefits

Non-motorized travel can play an important role in the overall transportation system. National studies show that nearly 30% of vehicle trips are less than one mile in distance. Both bicycling and walking are easy ways to complete these short trips or to commute to work/school. The resulting reduction in vehicular trips can therefore significantly help reduce traffic congestion.

Community Benefits

Although admittedly a subjective concept, non-motorized travel can also help define the community's character. A city with an extensive non-motorized network will tend to generate a significant amount of local bicycle and pedestrian travel. This tends to promote more interaction among people within that city and a resulting stronger sense of community.

Physical/Health Benefits

Bicycling and walking are generally recognized as excellent forms of physical activity, and can help prevent and/or control the chronic conditions that lead to cardiovascular disease, diabetes, obesity, and high blood pressure to name but a few. Those who bicycle or walk frequently generally enjoy better than average health to the point that the United States Surgeon General and the Center for Disease Control and Prevention both encourage such exercise. Health is further benefited by the resulting decrease in fuel emissions that would result from a decrease in vehicle trips. Considering these facts, bicycling and walking have the potential to improve both individual and public health like few other activities.

Economic/Competitive Benefits

Non-motorized facilities can also benefit the community economically. Organized walking and cycling tours highlighting the area's history can provide visitors with a glimpse at another layer of the community fabric. Bicycling and walking may bring tourists to a community that may otherwise not see a great deal of tourism. Furthermore, as visitors from the region or beyond take advantage of their increased accessibility to the area's destinations they will likely spend more money at local businesses.

More importantly, numerous studies have shown that many of today's younger professionals want to live in walkable and bikeable communities. The same appears to be true for another growing segment of the population, that being aging empty nesters. Given Michigan's well documented difficulties in keeping educated professionals from leaving the state, the

implementation of non-motorized and mass transit systems may well be a necessity for local communities trying to maintain a positive tax base.

Equity Benefits

Lastly, and perhaps more significantly, a complete non-motorized system can also promote equity. Horizontal equity is the principle used in economics to discuss the fairness of taxes and the ideal that the benefits of public improvements should be distributed equitably among people regardless of need, ability or geography. From a transportation perspective, equity is usually equated to the accessibility of transportation options to *all* residents, including those with low incomes and physical limitations.

As communities such as Detroit expanded outward during the post-World War II era, access to mass transit became more disparate and difficult to use effectively. This resulting geography of metropolitan Detroit supports the use of personal vehicles over mass transit. People without a driver's license or access to a motor vehicle (i.e., students, seniors, and the economically challenged) may therefore rely on walking or bicycling as their main mode of transportation. Access for those without cars has thus been limited and transportation equity reduced.

An improved non-motorized system therefore increases access, and thereby transportation equity, by expanding the range of transportation options. Cycling in particular enables people to travel beyond the limitations of the mass transit system, increasing their independence.

Additional non-motorized transportation options are also typically lower cost travel options. This is especially important when considering that residents in low income households make up a large percentage of transit users. A well planned non-motorized system can therefore reduce the financial burden of transportation costs on those with the least to spend.

Planning Process

The team from Giffels-Webster, through New Center Council (NCC) reached out to the various stakeholders to obtain available planning documentation related to the project area. NCC furthermore oversaw the preparation of this plan and served as the voice of the collective stakeholders.

It is important to note that this effort was undertaken in order to expand upon and compliment other planning efforts. Previously prepared planning studies and master plans were analyzed in relation to the district and non-motorized transportation. These plans and studies included the *City of Detroit's Urban Non-motorized Transportation Master Plan* and those listed in Table 1.

Giffels-Webster performed a detailed field review of the project area to analyze existing non-motorized and vehicular patterns. The team took measurements of the roadway infrastructure at key locations to assist in space planning of improvements. They also searched for potential linkages to and from adjacent neighborhoods, paying particular interest to any routes designated by adjacent neighborhoods.

Argonaut Building Redevelopment Traffic Impact Study
Wayne State University Plans for Anthony Wayne Drive
Woodbridge Non-Motorized Study
Corktown-Mexicantown Greenlink Study
Dequindre Cut Plan
Midtown Loop Plan
Detroit Greenways Network Vision
New Center Economic Development Plan
Detroit Non-Motorized Transportation Master Plan
I-94 Rehabilitation Project, MDOT, August, 2002
City of Detroit Planning Commission Report
-October 18, 2005

Table 1: Previous Planning Efforts Analyzed

Overall Project Area

Meetings were held with NCC and all appropriate stakeholders, including the City of Detroit Traffic Engineering Division, University & Cultural Center Association (UCCA) and Henry Ford Health System to review the overall scope of work and obtain key information related to the proposed improvements.

The team reviewed potential destinations within New Center and adjacent districts such as Midtown and Woodbridge. The destination analysis began with those locations outlined in the *City of Detroit Non-Motorized Transportation Master Plan*, which was updated based on current conditions and known proposed improvements. The result was an updated list of places people would likely want to ride a bicycle or walk to, along with places that could generate a significant volume of pedestrian and/or bicycle traffic.

A visual field review of all existing pavement markings and signage was performed. Giffels-Webster performed a detailed field review of the project area to analyze existing non-motorized and vehicular patterns, took measurements of the existing pavement cross-sections to obtain representative conditions at key locations to assist in space planning of improvements. Additionally, a cursory review of the traffic signals within the Second Avenue & Third Avenue corridor was conducted.

Based on this input, the team analyzed the feasibility of non-motorized connections to and throughout the project area. These facilities included on-street bicycle lanes, pedestrian improvements, and possible off-road greenways.

Potential routes to connect to adjacent non-motorized efforts were also analyzed and identified. This includes future phases of the Dequindre Cut, the Corktown-Mexicantown Greenlink, the Midtown Loop, and on-going efforts in Hamtramck.

The team also reviewed the feasibility of converting Third Avenue and Second Avenue from one-way to two-way traffic. This included identification of areas likely requiring geometric modifications and/or traffic signal modifications. Conceptual design schematics were then prepared for these areas.

Upon completion of our analysis a phased conceptual cost estimate was developed (including a 20% contingency) based on the concepts developed above. Possible funding sources for future implementation were also identified.

Pilot Project Area

More detailed information was prepared for the pilot project area. A planimetric survey of the Second Avenue right-of-way from Anthony Wayne to West Grand Boulevard was prepared based on aerial photography. This survey depicts all visible surface improvements, pavement limits, trees, signs, light poles, utility structure covers, and pavement markings.

Parsons-Brinckerhoff Michigan, Inc. (PBM) was hired by New Center Council to study the traffic requirements for the Second Avenue Two-Way conversion. A concept plan was then prepared identifying traffic flows and pavement cross-sections to convert the Second Avenue to two-way traffic while incorporating on-street bicycle lanes.

Upon review of these improvements with the City of Detroit Department of Public Works, Traffic Engineering Division we prepared detailed construction documents for this work. These plans are currently being reviewed by the City of Detroit for permit approval.

Non-motorized Concepts

Prior to a discussion of proposed improvements it is important to understand several basic concepts that can significantly impact the planning and implementation of non-motorized network. Those concepts, and their specific impacts on the New Center Non-motorized Transportation Plan, are discussed in the next several pages.

Bicycles and Pedestrians

It is generally accepted that bicycles on sidewalks present dangerous conditions for pedestrians. This is particularly true

in areas with narrow sidewalks. As recommended by the Michigan Vehicle Code, adult bicycle riders belong on the roadway or other dedicated space separated from pedestrians, depending on their relative abilities and comfort.

The resulting implication is that dedicated on-street bicycle lanes should be a priority in any non-motorized planning within urban areas. This is certainly true within New Center, as the redevelopment of the Argonaut Building into the College for Creative Studies (among other developments) will likely result in increasing numbers of pedestrians and bicyclists.

Mobility and Access

If bicyclists belong on city streets, then those streets must be modified to safely accommodate them. In doing so several questions are raised, and should be addressed in order to successfully proceed.

More specifically, what is the purpose of the roads within the New Center district? Are they present simply to move vehicular traffic? If not, then in what manner are they to serve the public?

The answers to these questions depend heavily on two related concepts of transportation planning: *mobility* and *access*. Mobility refers to the ability to get from one place to another quickly. Access refers to the ability to get from one place to a great number of other places conveniently.

For example, if the main purpose of a road is to carry vehicles long distances at high speeds, such as an interstate freeway, it



will be designed for mobility. If on the other hand the main use of a road is to visit homes or businesses, such as a neighborhood street, it is designed for access.

These two characteristics work against each other, meaning that an increase in mobility requires a decrease in accessibility. For instance a freeway has very few access points (i.e., ramps)

to allow for nearly uninterrupted mobility, while a residential street has numerous access points (i.e., driveways) to allow for frequent access to adjacent properties.

Different types of dedicated bicycle facilities can serve vastly different purposes depending on their surroundings. A one-way on-street bicycle lane may provide access and mobility within a dense urban area with a short block structure. Place that bicycle lane adjacent to a high-speed arterial road with heavy traffic volumes and its use may change to one of mobility.

The choice of mobility or access therefore has significant implications to pedestrians and bicyclists. This choice will ultimately determine the success of any non-motorized improvements.

Implications to this plan therefore relate to the perceived intended use of roadways such as West Grand Boulevard. As a major connector to adjacent districts, West Grand Boulevard can play an invaluable role for pedestrians and bicyclists looking to explore the City if adequate provisions are made for their safety.

Type of Bicycle Users

There are three generally accepted classifications of cyclists, and each of them can impact the success of a non-motorized system. Type A cyclists are advanced riders that feel comfortable sharing the roadway with vehicles and who's main objective is mobility. Type B cyclists (intermediate riders) and Type C cyclists (novice riders) have been shown to be less



likely to feel comfortable sharing high volume/high speed roadways with vehicles. Their main objective is more often access to the surrounding community.

When designing bicycle facilities along corridors it is important to understand this distinction. If an on-street bicycle lane is provided within a high speed/high volume roadway it is

therefore probably only going to be utilized by Type A cyclists. On the other hand if a dedicated path is provided adjacent to the roadway then it will likely only attract usage by Type B and C users.

The impacts of different users on the New Center Non-motorized Transportation Plan are relatively minor. Traffic speeds within an urban district such as New Center are usually slow enough to promote the use of on-street bicycle lanes by most users.

Additional Influences

Mass Transit

Bus Service

There is currently an increased awareness of the value of mass transit, particularly in the City of Detroit. Several bus lines operated by the Detroit Department of Transportation (DDOT) and Suburban Mobility Authority for Regional Transportation (SMART) run within the New Center district and must be accommodated when considering non-motorized improvements. When on-street bicycle lanes are provided near bus stops, special transition zones should be implemented as shown in Figure 2.

Furthermore, while DDOT is currently working to add bicycle racks to their buses, priority in locating bicycle parking should also be given to areas near bus stops. (Please refer to the Bicycle Parking section of this report for more details.) Lastly, any changes to traffic operations (i.e. conversion from one-way to two-way) should be coordinated with these agencies to ensure uninterrupted bus service.

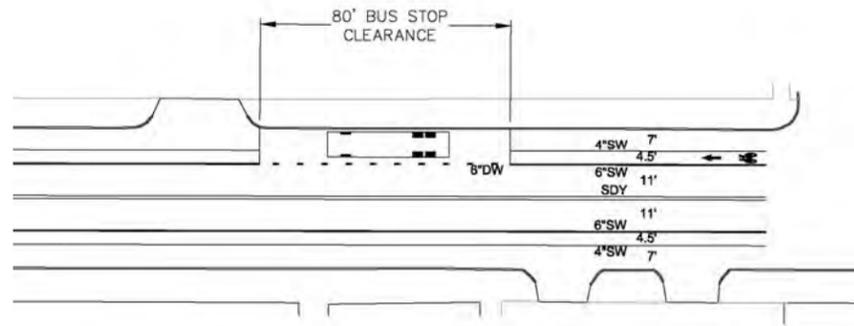


Figure 2: Typical Transition Zone near Bus Stops

Woodward Light Rail Projects

In addition to bus transit, there are two historic projects currently being planned for one of Detroit’s iconic roadways. The M-1 Rail Project envisions curb side and/or center lane commuter rail service along the entire Woodward Avenue corridor from Jefferson Avenue to West Grand Boulevard. A separate project of the Detroit Department of Transportation (DDOT), known as DTOGS, plans light rail along Woodward from West Grand Boulevard north to Eight Mile Road. A joint environmental study for both projects is currently underway.

Based on our current understanding of the M-1 project, the proposed cross-section for Woodward Avenue will include five lanes of traffic with two additional lanes for shared use by traffic and light rail trains. On-street parking will also be located along the curb lines on both sides of the street.

Balancing the space requirements for light rail with those for vehicular, pedestrian and bicycle traffic can be a difficult task. The inclusion of light-rail along Woodward and the preservation of wide sidewalks will certainly improve pedestrian usage of

the corridor. It would appear, however, that the implementation of bicycle facilities within the Woodward right-of-way will not be feasible.



Figure 3: Future M-1 Route

While it is unfortunate that Woodward Avenue may not support bicycle lanes, the New Center district is configured nicely to provide improved bicycle access to the Woodward corridor. Several nearby parallel routes (Second, Cass, John R, and Brush) appear suitable for the inclusion of dedicated bicycle lanes. Adequate east-west linkages from these routes to Woodward will be an important factor in providing enhanced bicycle accessibility. Whenever possible these linkages should be installed to coordinate with proposed rail stations.

Train Station

The Detroit train station is located on the southwest corner of the Baltimore and Woodward intersection. This station

currently serves AMTRAK trains and is the location of two DDOT bus stops.

There are currently plans in place to expand the use of this station, which will likely require the construction of a new facility. Based on our currently understanding of these plans, the train station will remain in its current location or be shifted south of the rail line to the northwest corner of the Woodward and Amsterdam intersection. The State of Michigan has recently completed a large parking lot / bus drop off on the south parcel.

Regardless of location, the new station will likely act as a true intermodal center for the city, and therefore service additional mass transit options. In addition to AMTRAK there are three commuter rail projects in varying stages of planning. The first two are the proposed M-1 Rail and DTOGS projects discussed earlier in this report. The third is a proposed Ann Arbor to Detroit project.

Because of this potential for increased usage both parcels must be priority destinations for inclusion in the non-motorized plan. In addition to access to the network these parcels should also be priority candidates for enhanced bicycle parking facilities, both short and long term. Please review our recommendations later in this report for more details.

Conversion of One-way Streets to Two-way Operation

Many streets within the City of Detroit, and the country at large, were converted from two-way to one-way traffic operation in the middle part of the twentieth century. It is believed that this

conversion was the result of the great growth in population, and the resultant increase in traffic.

This is true within New Center, including Second Avenue, (included as part of a pilot project) and Third Avenue as well as several streets east of Woodward. John R, Brush, Beaubien, and St. Antoine form two sets of one-way paired roadways.

A movement to recreate the original traffic patterns in America’s urban areas began in the late 1990’s. Five constituencies are to be considered in an evaluation of proposed two-way traffic operation conversions: motorists, pedestrians, transit, retail and the neighborhoods. This evaluation should be conducted in a balanced “complete streets” review with all users in mind.

Motorists – Two-way traffic operation is more direct and less confusing, with fewer miles traveled and fewer turns. While through travel time and roadway capacity are nominally better for one-way operation, local travel time and parking operations are nominally better with two-way operation. Two-way operations are generally better for the infrequent or unaccustomed visitor to the area.

Pedestrians – Two-way traffic operation results in more consistent and intuitive travel with fewer conflict sequences and conflict quantities. Vehicular speeds are lower allowing for increased crossing gap times.

Transit – Operation of transit (e.g. bus) routes may be less confusing on two-way streets with the pairing of transit stops less complex.

Retail – Two-way streets have increased visibility of the commercial properties along the corridor.

Neighborhoods – Two-way operation is the preferred mode for access throughout the neighborhood. In addition, neighborhood identity can be improved if vehicle mobility is no longer the primary purpose of the roadway corridor and more types of users are accommodated in a balanced manner.

We recommend that the six one-way operation roadways within the New Center district be converted from one-way to two-way traffic operation. In addition to assisting in improving the connectivity of the district, it aligns with the future reconstruction of I-94.

Reconstruction of the Ford Freeway (I-94)

The Michigan Department of Transportation is currently planning the reconstruction of the Ford Freeway (I-94) along the entire southern boundary of the New Center district. This project will significantly alter traffic patterns in this area, and will therefore also impact the planning of non-motorized routes and connections.

As of January 2010, the current design plan for the reconstruction of I-94 includes the addition of service drives

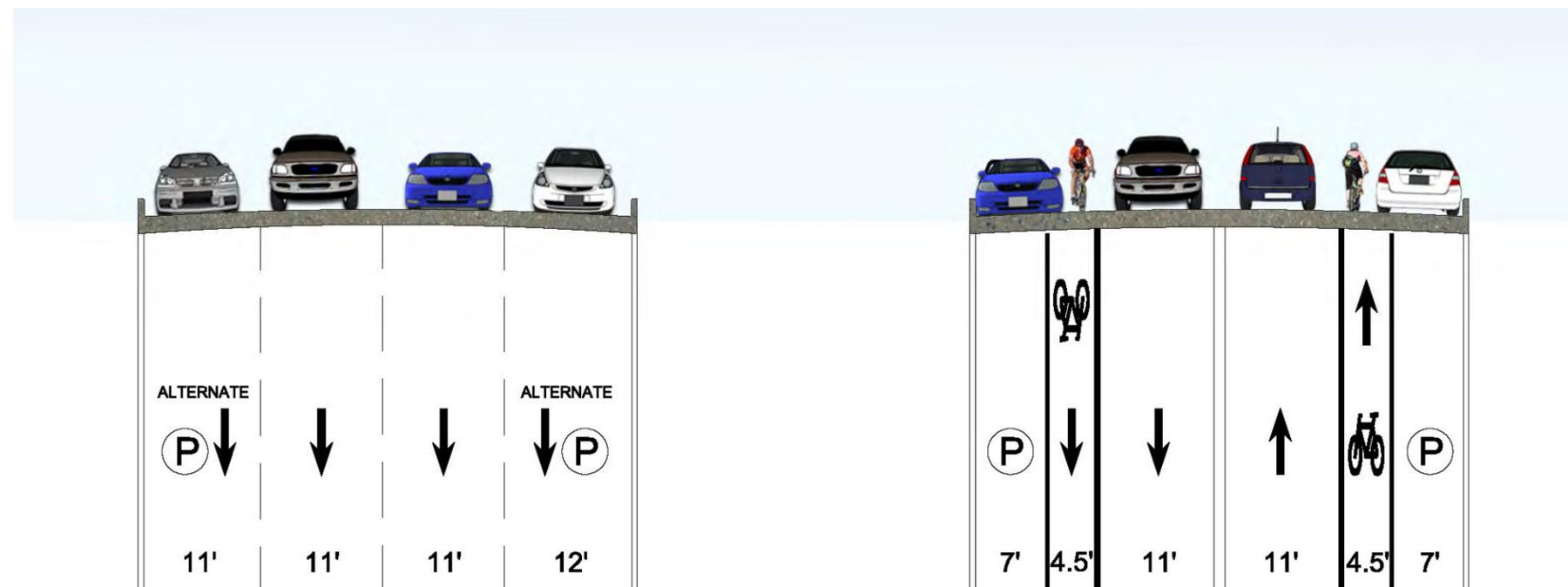


Figure 4: One-way to Two-way Conversion with On-road Bicycle Lanes

along the freeway. Furthermore the existing overpass bridges at Third Avenue, John R Street, Beaubien Street, and Ferry Street (over I-75) will be eliminated. Lastly, it appears that John R, Brush, Beaubien and St. Antoine (which are currently one-way streets) will be converted to two-way operation.

The unfortunate loss of these bridges will greatly reduce the connectivity between New Center and the neighboring districts. Indeed Brush, Woodward, Second and Cass will be the only remaining connections to and from Midtown. While it appears that Woodward Avenue will not support the inclusion of bicycle lanes we recommend that they be installed within the other three roadways to promote continued connectivity.

The conversion of the one-way streets to two-way operation is, as mentioned earlier in this report, a positive result of the project in our opinion as it relates to the district as a whole. If possible we suggest these conversions be pursued by the community as soon as funding allows.



Proposed Non-motorized System

The non-motorized system for the New Center district is based on the premise of enhancing connections to the neighborhood's assets as well as the City as a whole. It also assumes to utilize the existing infrastructure as much as possible without significant modifications.

Destinations

The City of Detroit's Urban Non-motorized Transportation Master Plan analyzed possible destinations across the entire City. It was considered "a crucial step in laying out a system that not only provides a means of travel for non-motorized users, but takes these travelers to places of interest or importance within the community." Our team focused on those destinations located within, and directly adjacent to, the project area. In addition to the destinations that were given priority status in the city-wide plan, we augmented the list with those deemed to have a local importance in defining the neighborhood.

Destinations were sorted into seven different categories that mimic those used by the City's overall master plan. These categories are:

- Urban Districts/Neighborhoods
- Commercial/Job Centers
- Schools/Education Centers
- Cultural Sites and Destinations
- Parks and Recreation Areas
- Connection Destinations
- Other Non-motorized Projects

The final destinations impacting the project area were then plotted on maps and used to help construct the preferred non-motorized routes. In this way the team ensured that the proposed non-motorized network will not only be complete but will connect residents and visitors of the area to the neighborhood's assets and to surrounding districts.

Routes

Just as a community's assets must be analyzed so too must the roadways that are eligible for designation as dedicated non-motorized routes. The team performed field reviews of all existing street rights-of-way to identify the potential for non-motorized improvements.

Preliminary routes were identified based on their perceived ability to provide access throughout New Center and/or connect the district to other neighborhoods of the city. These routes were then compared to the destinations discussed previously to ensure that all of the districts assets were accessible.

The result is a comprehensive network of connections in, around and through the district. Trumbull/Lincoln, Second, Cass, and Brush are priorities for north/south travel. Grand Boulevard, Milwaukee, and Piquette are priorities for east/west travel.

The selected routes align with those identified in the *City of Detroit Urban Non-motorized Transportation Master* previously referenced. These streets also exploit existing vehicular and pedestrian bridges over the freeways and under the elevated

Giffels-Webster New Center Routes and Destinations



LEGEND

- A Urban Districts/ Neighborhoods**
 - A1 Midtown
 - A2 Woodbridge
 - A3 Highland Park
 - A4 Virginia Park
 - A5 Boston Edison
 - A6 La Salle Gardens
 - A7 Hamtramck
 - A8 Russell Woods
 - A9 New Center Commons
 - A10 Piquette Ave. Industrial District
- B Commercial/ Job Centers**
 - B1 Henry Ford Hospital
 - B2 Russell Industrial Center
 - B3 Detroit Medical Center
 - B4 Tech Town
- C Schools/ Educational Centers**
 - C1 Golightly Education Center
 - C2 Barsamian Preparatory Center
 - C3 Detroit International Academy
 - C4 Thirkell Elem.
 - C5 Northwestern H.S.
 - C6 Hancock Elem.
 - C7 Edmonson Elem.
 - C8 Detroit Day School for the Deaf
 - C9 Wayne State
 - C10 College for Creative Studies-New Center
 - C10 Henry Ford Academy for Studies (Gr 6-12)
 - C11 College for Creative Studies-Midtown
 - C12 University Prep M.S.
 - C13 University Prep Holden
 - C14 University Prep Antoinette
 - C15 University Prep (PSAD)
- D Cultural Sites/ Destinations**
 - D1 Cadillac Place / formerly General Motors Building
 - D2 Ford Piquette
 - D3 Fisher Body Plant No.21
 - D4 Hitsville U.S.A (Motown Records)
 - D5 Charles H. Wright Museum
 - D6 Detroit Institute of Arts
 - D7 Detroit Science Center
 - D8 Detroit Historical Museum
 - D9 Detroit Children's Museum
 - D10 Fisher Theatre
- E Transit Connections**
 - E1 Future M1 Rail Stations
 - E2 Amtrack Station
- G Parks**
 - G1 New Center Park
 - G2 Peck Park
- Future M1 Rail**
- DTOGS**
- Future Rail to Trail**
- Proposed Greenway**
- On-road Bicycle Lane**
- Signed Route**
- X Bridge to Be Removed W/1-94 Reconstruction**

Figure 5: New Center Non-motorized Transportation Plan Routes, Destinations and Districts

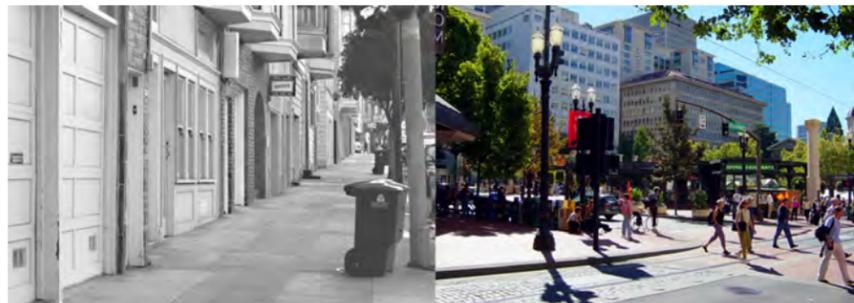


rail lines. In this way they also provide connectivity to the adjacent districts.

Once the preferred routes were identified, more detailed recommendations were made related to the type of pedestrian and bicycle improvements that should be implemented. Generally these recommendations include the widening of sidewalks and the introduction of dedicated on-street bicycle lanes to the existing street system.

Recommended Pedestrian Enhancements

We are all pedestrians, whether strolling through a park, using a wheelchair, skateboarding or walking. Since New Center is an established urban district it is not surprising that sidewalks are present along every street. As such there is already a great foundation for walking within the district, though the pedestrian experience is generally lacking.



All pedestrian facilities must be constructed to accommodate people with varying abilities in compliance with the Americans with Disabilities Act (ADA). More than simple compliance with minimum standards, pedestrian spaces should be large enough to allow for comfortable use. While a five foot wide

sidewalk may comply with ADA guidelines, it may not provide the room needed to make the space inviting to pedestrians.

In this spirit, the sidewalks located within the project area should be a minimum 8 feet wide (10 feet when possible). This is critically important within the denser commercial districts to allow for higher density of walkers, sidewalk amenities, café style dining and swing space for building doors.

Further improvements are recommended relative to ADA compliance and pedestrian safety in the grade separation of the railroad that divides the study area. As projects proceed through the study area, sidewalk ramps at intersections shall be brought into compliance with ADA standards.

New benches should be placed throughout the corridor to allow pedestrians opportunities to stop and congregate. Trash and recycle receptacles should accompany the benches as well. Pedestrian level lighting should also be considered in the continued pursuit of improving the pedestrian experience.

Grand Boulevard should be one of two primary focuses of the New Center plan with regard to aesthetic improvements to the pedestrian spaces. Given its history, central location to the district and physical condition, Grand Boulevard has the potential to become New Center's defining pedestrian space.

Additionally, improving the condition of the rail viaducts should be another priority in implementation. Because of the projected increase in pedestrian volumes resulting from the redevelopment of the Argonaut Building by the College of

Creative Studies we recommend that the viaducts on Second, Cass and Woodward are the highest priority. The remaining viaducts at Third, John R, Brush, and Beaubien may be improved in the future.



The viaduct grade separations for the railroad that divides the study area have created areas that at best are perceived as not friendly to pedestrians. The space between the bridge abutments and piers along the road are adequate in width for pedestrian movements, however the pedestrian spaces under these viaducts are in poor condition. In addition to sidewalk pavement repairs and bridge abutment wall patching there are few working lights. The result is a series of uninviting spaces that bisect the district into two separate areas. We therefore recommend that improvements to this space (lighting, pavement repairs, etc.) be performed. In addition to ensuring safe passage the improvements will help encourage their use.

Curb Ramps

Curb ramps are in need of reconstruction in numerous locations. This is due in part to non-compliance with ADA guidelines (lack of detectable warning, slope issues, etc.). It is also based on a functional assessment. The transition area between the curb ramp and the road pavement is often uneven, due to settlement or deterioration, making it difficult and uncomfortable for people pushing wheel chairs or strollers.

When feasible, curb ramps should align with the crosswalk, with two ramps per corner. This provides orientation for



visually impaired pedestrians by leading them to the opposite side of the street rather than the middle of the intersection.

Surface Treatments

To meet ADA requirements, a walkway must be firm, stable, and slip resistant. Concrete is the most widely used sidewalk material for its versatility and durability. Decorative coloring and/or stamping should be considered if deemed appropriate to increase the overall attractiveness and distinctive feel of the corridor.

Two notes of caution regarding decorative stampings or brick pavers must be mentioned. The selection of materials for sidewalks and crosswalks must take into account the comfort and accessibility of all users. Women in high heeled shoes and those pushing strollers or wheelchairs can be adversely affected by decorative pavements with deep joint patterns.

Furthermore, the American with Disabilities Act Accessibility Guidelines requires detectable warning strips at all pedestrian spaces adjacent to vehicular traffic. The use of certain patterned surface material within a sidewalk may interfere with the ability of some to detect these strips.

Road Crossings

Crosswalk markings should be used to define the preferred path of travel across the roadway and to alert drivers to the crosswalk locations. All marked crosswalks shall be designed in conformance with the *Michigan Manual of Uniform Traffic Control Devices* (MMUTCD).

Although the MMUTCD provides for crosswalk design options, research indicates that the continental, ladder or “zebra” designs are the most visible to drivers and pedestrians with low vision and cognitive impairments. The continental and ladder designs consist of white longitudinal lines perpendicular to the line of the crosswalk, 12 to 24 inches wide and spaced 12 to 24 inches apart.

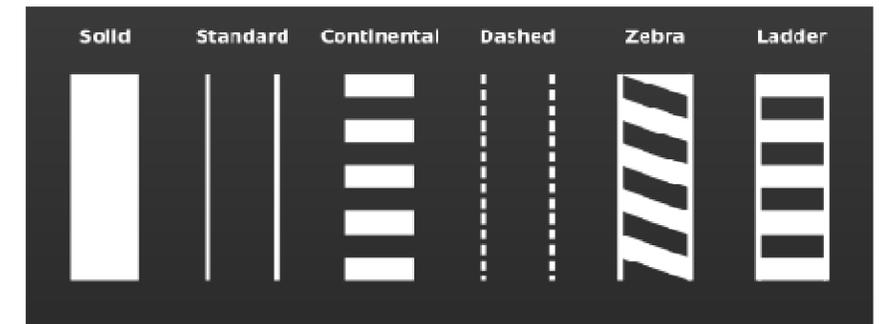


Figure 6: Crosswalk Pavement Marking Styles

Crosswalk markings must be visible, especially at night, and must be slip-resistant. Although paint is less expensive, tape and thermoplastic are more cost effective in the long term and perform better in wet conditions. Both tape and thermoplastic are slip-resistant, highly reflective and do not require much maintenance. Tape is best for new or resurfaced pavement, while thermoplastic is more appropriate on rougher surfaces.

Signs and Signals

Another way to increase pedestrian safety involves devices to warn motorists of the presence of pedestrians, such as signs, signals and lights. Studies have shown that signs are often ineffective in altering motorist’s behavior and may be disrespected if overused. However, if used judiciously, they can be valuable.

Traffic signal timing is an important aspect of pedestrian crossing safety. Some pedestrians, especially people with mobility impairments and the elderly, need additional crossing time. Longer crossing times should be considered in areas expected to serve slower pedestrians or larger volumes of pedestrian traffic. However, increased pedestrian crossing



time must be balanced with traffic flow operations such that the increased crossing time does not come at the expense of excessively long wait times, which can cause pedestrians to grow impatient and cross during gaps in the traffic.

Pedestrian actuated signals are an option to respond to pedestrian crossing demand while reducing the affect on vehicular traffic flow. When a pedestrian pushes the pedestrian button, it sends a message to the traffic signal controller that a pedestrian needs to cross and will display the “walk” light when the lights change. Some pedestrian actuated signals are designed to change the traffic lights in favor of pedestrians. Accessible pedestrian signals may also provide audible (chirping, verbal or other tones) or vibrotactile information that is particularly helpful for individuals with vision or cognitive impairments.

Recommended Bicycle Enhancements

Unlike pedestrian spaces, no dedicated bicycle facilities can be found within the project area. We strongly recommend that this change through the introduction of a multi-tiered system of bicycle facilities to accommodate all potential users.

On-street Bicycle Lane Network

National standards have already been developed to accommodate bicycles through roadway development. Refer to Table 2 for a more detailed listing. The American Association of Highway and Transportation Officials (AASHTO) *Guide to the Development of Bicycle Facilities* and the Federal Highway Administration Report *Selecting Roadway Design Treatments to Accommodate Bicycles* are recommended as guides for the implementation of this Plan. The Federal

Highway Administration’s *Manual on Uniform Traffic Control Devices* (MUTCD), as revised by the State of Michigan (the MMUTCD), should also be utilized for standard pavement markings and signage pertaining to bicycle facilities.

Dedicated on-street bicycle lanes should be installed along all preferred routes when space allows. Five foot wide bicycle lanes should be installed on each side of the road in accordance with City of Detroit and AASHTO standards. Based upon our field review, we believe that bicycle lanes may be added to Second, Cass, Trumbull/Lincoln, Piquette, Amsterdam and Brush without modifications to curb lines or pavement.

<p>Bicycle Path: A designated facility physically separated from vehicular traffic. It should be noted that bicycle paths may be designated for bicycle only usage if desired.</p> <p>Bicycle Lane: A designated lane located within the traveled way for one-way bicycle travel.</p> <p>Shared Lanes (Sharrows): A designated lane located within the traveled way for use by vehicular traffic and one-way bicycle travel.</p> <p>Signed Route: A non-designated route which bicyclists are encouraged to use to connect to nearby designated facilities.</p>

Table 2: Types of Bicycle Facilities

The other preferred routes do not appear wide enough to allow for the installation of on-street bicycle lanes. We therefore recommend that these roads be designated as signed routes in order to complete connectivity of the overall non-motorized

system. Signed routes should be designated on Milwaukee, Third, Holden/Forsyth, John R, Beaubien and Hastings.

As with pedestrian improvements, Grand Boulevard should be a focus of the New Center plan with regard to on-street bicycle lanes. In addition to being a defining corridor for the area, Grand Boulevard has the potential to connect New Center with other parts of the City like few other roads. West of the Lodge Freeway (M-10), West Grand Boulevard ties directly to the current and possible expanded campus of Henry Ford Hospital and continues to connect to the proposed Corktown-Mexicantown Greenlink at Martin Luther King Boulevard. East of the I-75 Expressway, East Grand Boulevard connects not only with the Villages and East Jefferson Districts of Detroit, but also to the City of Hamtramck.

We therefore also recommend the inclusion of on-street bicycle lanes on Grand Boulevard in order to prepare New Center as the center point of this future connectivity. The implementation of such a project will require a reassessment of the traffic demands, the number of required lanes, and the desire for on street parking along this route. Based on our observations there would appear to be enough excess capacity to warrant future traffic studies related to the implementation of the road diet needed to install on-street bicycle lanes.

Should a traffic study indicate that a lane of traffic can be eliminated in each direction, we recommend that 5 foot wide bicycle lanes be provided. We suggest that this be implemented through the use of new pavement markings and signage rather than through modifications to the existing

pavement. Because of the dimensions of Grand Boulevard we recommend that the bicycle lane be buffered by a 3 foot wide space, striped accordingly.

Off-street Bicycle Paths/Greenways

It is easy to become focused primarily with on-street bicycle facilities when looking at an urban area such as New Center. The short block structure of the roadway network and the density of developed parcels can greatly limit the space available for off-street bicycle paths or greenways. These facility types should not be forgotten however, as they can provide another layer of recreation if creatively implemented.

One opportunity is an off-street path from the existing Holden Street Pedestrian Bridge over the Lodge Freeway, easterly along the western and northern edges of the Henry Ford Health System parking lot near Amsterdam. This “Amsterdam Extension” would connect the existing neighborhoods and proposed south campus of Henry Ford Hospital across the Lodge Freeway to New Center and tie into proposed routes on Amsterdam and Piquette.

A second possibility is the conversion of Second Avenue to a “bicycle boulevard”. Both directions of traffic would be placed on the existing east side of the boulevard. The existing pavement on the west side of the boulevard would be for bicycle traffic only. (This option could only exist from the Antoinette north to the railroad bridge.)

A third option would be some form of rails-to-trails or rails-with-trails along the existing rail corridor. Though not studied in

detail, the corridor could connect to Hamtramck and possibly an expanded Dequindre Cut to the east and southwest Detroit to the west. This option is deemed a long-term idea at this point because the railroad line is currently in operation.

Railroad Viaduct Implications

As mentioned earlier, the existing rail lines located within the project area cross several roadways at elevated viaducts. Crossings are located at Third, Second, Cass, Woodward Avenue, John R, Brush, and Beaubien.

Depending on the traffic demands Second, Cass and Woodward the addition of bicycle lanes may not be feasible. Whenever space allows we recommend that sharrows be implemented in these locations. A second option would shift the bicycle lanes into the space between the bridge piers and bridge abutments as a shared use path. While not ideal, the spaces appear large enough for the limited shared use.



On-street Parking Implications

On-street parking is provided along most of the roadways within the district. While a majority of this is standard parallel parking, a small portion of reverse angled parking is located on

Milwaukee Avenue for use by law enforcement officials near the State of Michigan Building. Parking is the life-blood of a successful urban neighborhood, so we therefore recommend that existing on-street parking be maintained wherever possible.

Parallel parking can work very well with dedicated on-street bicycle lanes. While drivers must become accustomed to checking for bicyclists when parking or opening car doors, this configuration has been successfully implemented in numerous communities around the country.



Utilizing angled parking configurations can significantly increase the number of available spaces (up to 30%). The lack of parking within the district has been mentioned as a concern of the residents and business owners. We therefore recommend that angled parking be considered where space allows, with one caveat. If angled parking is preferred by the stakeholders, we strongly recommend that reverse angle parking be utilized. Reverse-angle parking is very similar to the current parking configuration on Milwaukee Avenue adjacent to the Cadillac Place building and along Second Avenue within Midtown, however instead of a driver pulling into parking space they are required to back in.

Benefits of this change include that drivers leaving a parking space are now oriented toward traffic and therefore have full visibility prior to pulling out. Furthermore the trunk or rear hatch of the vehicle is adjacent to the sidewalk to facilitate safe loading of the vehicle.

Another significant benefit on reverse angled parking involves the interaction with bicyclists. Because drivers are oriented toward traffic, their ability to see bicyclists is greatly improved, therefore minimizing a major potential conflict point. At least 26 communities within the United States have adopted reverse angle parking, and many of these communities regularly install them adjacent to bicycle lanes.

We have discussed the possible expansion of reverse angled parking in the City of Detroit with the Traffic Engineering Division of the Department of Public Works. At this time the City of Detroit is of the opinion that the use of reverse angle

parking should not be expanded. We nonetheless recommend that the New Center Council consider reverse angle parking in the future and discuss the matter with the City again.

Surface Treatments

While concrete is the recommended material for sidewalks, the same is not true for bicycle facilities. The physical properties of concrete require the installation of expansion and contraction joints at regular intervals. These joints significantly diminish comfort for bicyclists, and have been found to reduce usage. We therefore recommend that bicycle facilities be constructed of asphalt pavement when possible. If concrete is used, the joints should be saw cut and not formed.

Bicycle Parking

Most users of the bicycle network will ultimately stop at some point, and will need facilities to lock and store their bicycles. Public bicycle parking should be installed liberally throughout the district to encourage use of the network. Beyond supporting the cyclist, providing bicycle parking prevents damage to existing street trees and furniture, keeps the sidewalk clear and supports the businesses that are adjacent to the parking.

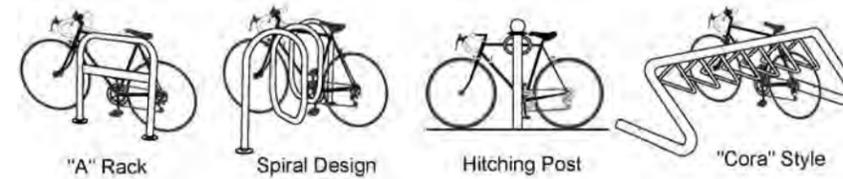
As with motorized vehicles, bicycle parking needs to be designed for different types of destinations and for both short and long term time periods. Parking may be accomplished by simply installing a single bicycle rack or through the creation of bicycle parking lots and long term “storage locker” style parking options.



Short Term – Parking in recreational and commercial areas (e.g., parks, commercial/retail, healthcare and/or restaurants) is generally thought of as a couple of hours in length or so. Short term parking should be located close to the entrance, visible, outside of the vehicular or pedestrian routes and relatively simple in rack design.

When choosing bicycle racks and locations, there are a number of things to keep in mind. The rack element (part of the rack that supports the bicycle) must keep the bicycle upright by supporting the frame in two places, allowing one or both wheels to be secured. Inverted “U”, “A”, or post and loop racks are therefore the recommended design standard. The common “wave” style of bicycle rack is generally not recommended. Racks should be positioned so there is adequate room between adjacent parked bicycles. For instance, a row of inverted “U” racks should be situated on 30 inch minimum centers.

Racks should be placed to not interfere with vehicle parking and pedestrian routes. Locations should be chosen to be convenient, secure and eliminate the need to lock bicycles to utility poles, trees, fences, etc..



Preferred Bike Parking Designs

Figure 7: from Sacramento Area Bicycling Advocates

Long Term – We suggest that several small parking areas be created throughout New Center as vacant parcels or other spaces (e.g., unused spaces in parking structures) allow, within unused areas of parking structures and/or within buildings. Parking should be located at or near transit oriented developments (e.g., bus stops and proposed M-1 Rail and DTOG rail stations), larger destinations (e.g., Henry Ford Hospital, Fisher Building, Center for Creative Studies, train station, etc.), residential developments and public facilities (e.g., Cadillac Place, Detroit Police Department). Ideally, parking should be located immediately adjacent to an entrance to the building in a clearly visible area to deter vandalism and other crime, controlled access, lighted and covered or interior to a building. Long term parking areas can include fenced in bicycle “pens”, storage lockers and/or bicycle rooms.

Refer to the parking guidelines published by the Association of Pedestrian and Bicycle Professionals (www.apbp.org) for a more detailed discussion.



Ordinances and Standards – A recommendation of this Plan is for New Center Council to partner with the City of Detroit to develop and implement bicycle parking requirements for proposed developments during the planning and zoning process. In addition to any ordinances required, we would recommend the development of planning, design and installation standards for bicycle parking (both interior and exterior) for both new and existing developments. Many organizations and communities have developed installation standards and planning and zoning ordinances requiring bicycle parking as part of proposed developments. See Table 3 for a partial listing.

<ol style="list-style-type: none"> 1) Association of Pedestrian and Bicycle Professionals. <ol style="list-style-type: none"> a. <i>Bicycle Parking Guidelines</i> b. www.apbp.org 2) Bicycle Alliance of Washington <ol style="list-style-type: none"> a. <i>Retailer's Guide to Implementing Effective Bicycle Parking</i> b. http://www.bicyclealliance.org/commute/sbblarge.pdf 3) Pedestrian and Bicycle Information Center <ol style="list-style-type: none"> a. http://www.bicyclinginfo.org/engineering/parking.cfm 4) Cambridge, Massachusetts <ol style="list-style-type: none"> a. <i>Bicycle Parking Guide</i> b. http://www2.cambridgema.gov/cdd/et/bike/ 5) Oakland, California <ol style="list-style-type: none"> a. <i>Bicycle Parking Rack Guidelines</i> b. www.oaklandpw.com/bicycling 6) Sacramento, California <ol style="list-style-type: none"> a. http://www.sacbike.org/sacbiking/parking b. http://www.qcode.us/codes/sacramento/ 7) Toronto, Ontario <ol style="list-style-type: none"> a. <i>Guidelines for the Design and Management of Bicycle Parking Facilities</i> b. http://www.toronto.ca/cycling/parking/index.htm

Table 3: Bicycle Parking Resources

Signs

Adequate regulatory and safety signage must be installed along with the proposed bicycle facilities. All such signage should conform to the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

Aside from regulatory signage, there will be a growing need for directional/wayfinding signage as more non-motorized facilities are implemented within the City. This is particularly important in the implementation of the New Center Non-motorized Transportation Master plan since New Center Council and neighboring University Cultural Center Association are taking the lead at this point. We suggest that common designations for destinations be discussed by these two organizations to alleviate potential confusion by users.

Pilot Project

Second Avenue between Vernor Highway (now the I-75 Expressway) and West Grand Boulevard was converted from two-way to one-way traffic operation in the time period of the late 1930's to mid 1940's. It is believed that this conversion was the result of the great growth in population (and the resultant increase in traffic) of the City of Detroit during this time period, especially in New Center around the Burroughs and General Motors headquarters.

As discussed in more detail earlier in this report, a movement has existed since the late 1990's to convert these corridors back to two-way traffic operation. In addition to the planning of routes within the district, a pilot project was therefore envisioned. Second Avenue, from Palmer to West Grand Boulevard, was to be reviewed to determine the viability of converting operation from one-way to two-way traffic. Additional analysis related to parking configurations and the introduction of on-street bicycle lanes was also included.

From Palmer to West Grand Boulevard the existing roadway is one-way in the northbound direction. The roadway begins as a four lane road at Palmer but splits into a one-way boulevard at Antoinette, with two lanes northbound on each side of the median. The median continues until the railroad viaduct where the road is three lanes in width.

The PB study confirmed the ability to convert from one-way traffic to two-way traffic with two lanes in each direction and either on-street parallel parking or on-street bicycle lanes in each direction from Palmer to the railroad viaduct. An update

to the PB study along with a study of Third Avenue from Palmer to West Grand Boulevard is required to confirm if the travel lanes can be reduced to one lane in each direction with both on-street bicycle lanes and on-street parallel parking.

Two lanes of travel are required in the northbound direction at the railroad viaduct. Due to the limited width at this location the bicycle lanes will have to be directed into the space between the bridge piers and bridge abutments as a shared use path. While not ideal, this space is large enough for the limited shared use. Furthermore, separate projects are currently under consideration by New Center Council for updates to the viaduct lighting, fencing, and paved surface to provide for adequate shared use.

Implementation

Implementation of the recommendations outlined in this report will likely require a phased approach. This is due in part to the realities of project funding and in part to the varying complexity of permitting and local community priorities that may be encountered.

There are several ways in which these improvements are likely to be implemented. All will require New Center Council to shepherd the concepts to ensure they are given proper priority.

Third Party Sponsorship

Most of the bicycle improvements recommended by this report require the application of pavement markings and the installation of new signage rather than physical construction. Because of this there is ample opportunity to include these improvements during a typical City sponsored road

maintenance program. We recommend that New Center Council work with the City of Detroit Department of Public Works on a yearly basis to ensure that any proposed projects within the district include the implementation of non-motorized improvements.

<p>Higher Priority: Second Avenue Cass Avenue Grand Boulevard Piquette Avenue Hastings Street Rail Viaducts (Second, Cass, Woodward)</p> <p>Medium Priority: Trumbull Avenue/Lincoln Street Brush Street Milwaukee Street Amsterdam Amsterdam Extension (at HFHS Parking Lot) Holden Street – west of Lodge Freeway Rail Viaducts (Brush & Holden)</p> <p>Lower Priority: Third Street Holden/Forsyth Avenue John R Street Beaubien Street Rail Viaducts (Third, John R & Beaubien) New Center Rails-to-Trails Greenway</p>

Table 4: Proposed Project Priority

Another similar method of implementation involves larger property owners within the district. We recommend that New Center Council work with these land owners, such as Henry Ford Health Systems, the Center for Creative Studies and others, to incorporate non-motorized improvements into their

capital improvement projects and advocate for City sponsored non-motorized improvements.

New Center Council Sponsorship

Third party sponsorship of projects will not always work. Furthermore it will likely require a much longer time period to enact meaningful change to the district. The quicker method involves New Center Council directly sponsoring a project.

Under this model New Center Council must prioritize non-motorized improvements more specifically to adjust to available funds. Depending on the funding available potential projects may include the addition of bicycle lanes and signage and/or streetscape and pedestrian experience improvements. We therefore offer the following recommended priority based on routes rather than on the type of improvements to be implemented.

Typical Non-motorized Unit Costs
Stripe shared lane and add signs/markings \$20,000/mile
Add bicycle lanes and add signs/markings \$25,000/mile
Re-stripe outside travel lanes and add bicycle lanes signs/markings \$40,000/mile
Re-stripe full road width and add bicycle lanes signs/markings \$75,000/mile
Add blue bicycle lanes signs/markings \$140,000/mile
Construct separate bicycle path \$250,000/mile
Construct non-motorized bridge overpass \$5,000,000/each

Table 5: Typical Unit Costs for Non-motorized Improvements

Conceptual Costs

Project funding is usually the largest obstacle to overcome in the implementation of non-motorized facilities. Because of the magnitude of cost we have provided anticipated unit costs for each different type of proposed improvement in Table 5.

The cost to implement the non-motorized transportation projects presented in this Plan were developed using unit construction costs obtained from the City, State and other sources. The costs to implement each bicycle facility are presented in Table 6.

It should be recognized that unit costs vary considerably depending on the size of the job and the location. These costs are hard construction costs in year 2010 dollars and do not include any soft costs (i.e., contingencies, design and construction administration). Typically 25 percent is added for contingencies and 15 percent is added for design and construction administration. Utilizing these typical unit costs and the proposed improvements outlined in this report, we present the following Order of Magnitude Cost Estimate.

It is important to note that each construction project is unique and actual costs will vary according to the specific project, the type of bicycle facility and the existing roadway configuration. More precise estimates should be developed after preliminary engineering has been completed.

New Center Non-motorized Transportation Plan

Route	Limits		Length	Type of	Conceptual	Conceptual	Priority Group
Name	From	To	in Miles	Improvement	Unit Cost	Cost	Costs
Second	Ferry	W Grand	0.75	On-street	\$ 75,000	\$ 56,250	
Second Viaduct			n/a	Misc	\$ 50,000	\$ 50,000	
Cass	I-94	W Grand	0.50	On-street	\$ 75,000	\$ 37,500	
Cass Viaduct			n/a	Misc	\$ 50,000	\$ 50,000	
Grand Blvd	M-10	I-75	1.20	On-street	\$ 75,000	\$ 90,000	
Piquette	Woodward	I-75	0.65	On-street	\$ 75,000	\$ 48,750	
Hastings	Piquette	W Grand	0.30	On-street	\$ 75,000	\$ 22,500	
Hastings Viaduct			n/a	Misc	\$ 50,000	\$ 50,000	
Woodward Viaduct			n/a	Misc	\$ 75,000	\$ 75,000	
							\$ 480,000
Trumbull/Lincoln	MLK	W Grand	1.85	On-street	\$ 75,000	\$ 138,750	
Brush	I-94	E Grand	0.45	On-street	\$ 75,000	\$ 33,750	
Brush Viaduct			n/a	Misc	\$ 50,000	\$ 50,000	
Milwaukee	M-10	I-75	1.20	Signed	\$ 25,000	\$ 30,000	
Amsterdam	Third	Woodward	0.35	On-street	\$ 75,000	\$ 26,250	
Amsterdam Extention	Third	M-10	0.25	Bicycle Path	\$ 250,000	\$ 62,500	
Holden	Lincoln	M-10	0.30	On-street	\$ 75,000	\$ 22,500	
Holden Viaduct			n/a	Misc	\$ 75,000	\$ 75,000	
							\$ 438,750
Third	I-94	W Grand	0.55	Signed	\$ 25,000	\$ 13,750	
Third Viaduct			n/a	Misc	\$ 50,000	\$ 50,000	
Holden/Forsyth	M-10	Third	0.15	Signed	\$ 25,000	\$ 3,750	
John R	I-94	E Grand	0.45	Signed	\$ 25,000	\$ 11,250	
John R Viaduct			n/a	Misc	\$ 50,000	\$ 50,000	
Beaubien	I-94	E Grand	0.45	Signed	\$ 25,000	\$ 11,250	
Beaubien Viaduct			n/a	Misc	\$ 50,000	\$ 50,000	
New Center Greenway	M-10	I-75	1.60	Rail-to-trail	\$1,500,000	\$2,400,000	
							\$2,590,000
		Totals	11.00				\$3,508,750

Table 6: Conceptual Construction Estimates

Safe Accountable Flexible Efficient Transportation Equity Act (SAFETEA-LU)

Enabling legislation from the federal government that creates funding opportunities generally administered by MDOT such as enhancement and general road construction funding. This bill has been extended through fiscal 2010 as the congress works to authorize a new bill for 2011 and beyond. It is therefore the perfect time to lobby local representatives for support of projects within the district.

Safe Routes to Schools program

Safe Routes to School (SRTS) programs aim to make walking and bicycling to school a safe and appealing form of transportation. Federal funding is available for activities that directly link to school.

Land and Water Conservation Fund

Federal appropriation to the National Park Service who distributes funds to the Michigan Department of Natural Resources for land acquisition and development of outdoor recreation facilities.

Michigan Natural Resources Trust Fund

Provides funding for both the purchase of land for recreation or protection of land because of its environmental importance or scenic beauty, and the appropriate development of land for public outdoor recreation use.

Brownfield Revitalization Grants

The Brownfield Revitalization and Environmental Restoration Act provides funding for greenways and other "green" activities.

Kresge Foundation, Hudson-Webber Foundation, Community Foundation for Southeast Michigan, and others

Solicit, receive and manage charitable contributions from individuals, families, corporation, other foundations and nonprofit organizations.

Table 7: Possible Funding Sources

Potential Funding Sources

Some of the recommended improvements can be implemented without significant financial investment. This is certainly true of those installed as part of routine maintenance projects as previously discussed.

When New Center Council looks to sponsor these improvements, the identification of additional funding mechanisms becomes critically important. Maintaining a local capital improvement program that provides regular funding for the bicycle program to construct new facilities, retrofit inadequate facilities and refurbish older facilities may not always be feasible.

Various options have been identified as possible sources of funding to implement the Plan's recommendations. The sources noted on the following page are not all inclusive, but represent the primary funding sources currently available for non-motorized projects in this area.

A final possible funding route consists of private or corporate donations. New Center should consider the creation of a program similar to "adopt a highway", where individuals and corporations can donate funds for planning and construction of non-motorized facilities. This could be expanded to include the sale of naming rights for portions of the system. Similarly, this program could include the donation of time used to maintain the cleanliness of the route once completed.



Operation

The overall success of integrating non-motorized traffic into the local transportation network not only depends on proper planning and construction, but relies heavily on supporting Education, Encouragement and Enforcement programs (The three "E's"). In many instances these are grassroots programs that generate local interest in bicycle safety and promote the many benefits of bicycling.

Education

The rules of the road should be highly publicized as part of the education process. The Michigan Secretary of State has a pamphlet available that would be a good starting point. Bicycling education programs are therefore integral ways in which New Center Council and the community can support the overall non-motorized system. Comprehensive public information and education programs are often used to raise community awareness and improve both bicyclists' riding and traffic skills and motorists' attitude toward bicyclists. In

Michigan, a bicycle is considered a vehicle when operated on a roadway. Thus, bicyclists and motorists basically have the same rights and duties, and the laws governing traffic regulation apply equally to both. Bicyclists must obey the same traffic laws as those operating motor vehicles and follow traffic signs, signals, lane markings, directions, etc.

Bicycle laws and regulations must be readily enforced in a manner to encourage safe bicycle usage. The MDOT web site provides a summary of state laws concerning bicycles and their use and safety tips that should be incorporated into local bicycle programs. Bicycle "rules of the road" should target a wide audience including children, adolescents, adults and seniors from varying backgrounds. Please refer to the League of Michigan Bicyclists (www.lmb.org) for more detailed information.

To ensure a safer bicycling experience, public education programs frequently address effective riding principles and the use of safety equipment such as helmets and reflectors. New Center Council should consider sponsoring bicycle driver education classes at local schools as well as community and vocational training centers.

Encouragement

Programs and initiatives that encourage bicycling are also an important element of creating a bicycle friendly community. One way to promote and encourage bicycling is to provide assistance in the form of maps, brochures, and/or travel guides to make bicycling more approachable and enjoyable for novice and advanced bicyclists alike.



Figure 8: Pittsburgh Online Bike Map (Courtesy of Bike PGH Website)

Several bicycling pages should be developed on the New Center Council website, including a bicycle map that is available for download. This information should also be available on all neighboring community websites as well. In addition to outlining available route types, these maps may serve as an educational tool for safe bicycling practices and to provide information about bicycle clubs, stores and parking opportunities. They should also highlight connectivity into the neighboring communities and to nearby non-motorized facilities.

Enforcement

Enforcement of state and local bicycle regulations is an important element in providing a safe non-motorized environment. Like any other transportation system, uniform

rules and regulations define user expectations and reduce the risk of injury.

Because on-street bicycle lanes are new to cities such as Detroit it is an unfortunate byproduct that local law enforcement officials don't always know the "rules of the road" themselves. We therefore strongly recommend that New Center Council partner with the Detroit Police Department to ensure that local police officers are educated and encouraged along with residents.

Conclusion

With this plan we have attempted to provide New Center Council with a body of information and related actions that allows them to help maximize the benefits of the area to non-motorized users. We understand that this process will not be easy, but will result in the transformational change its current and future residents will expect as other cities improve their "quality of life".

Indeed, implementation of the improvements recommended in this plan will require a full level of cooperation and commitment from *all* stakeholders and governing agencies. It will also require a change in the way some view roadways.

The recommended inclusion of dedicated bicycle facilities for all types of riders is admittedly aggressive, and to some may seem excessive. However we fully believe that non-motorized transportation planning needs to adjust to the growing level of demand for non-motorized systems.

Detroit's New Center can serve as an icon for a new age in the City. It can be the symbol for an age when universal accessibility, complete streets, and sustainable design tenets are not add-ons but rather the norm.



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