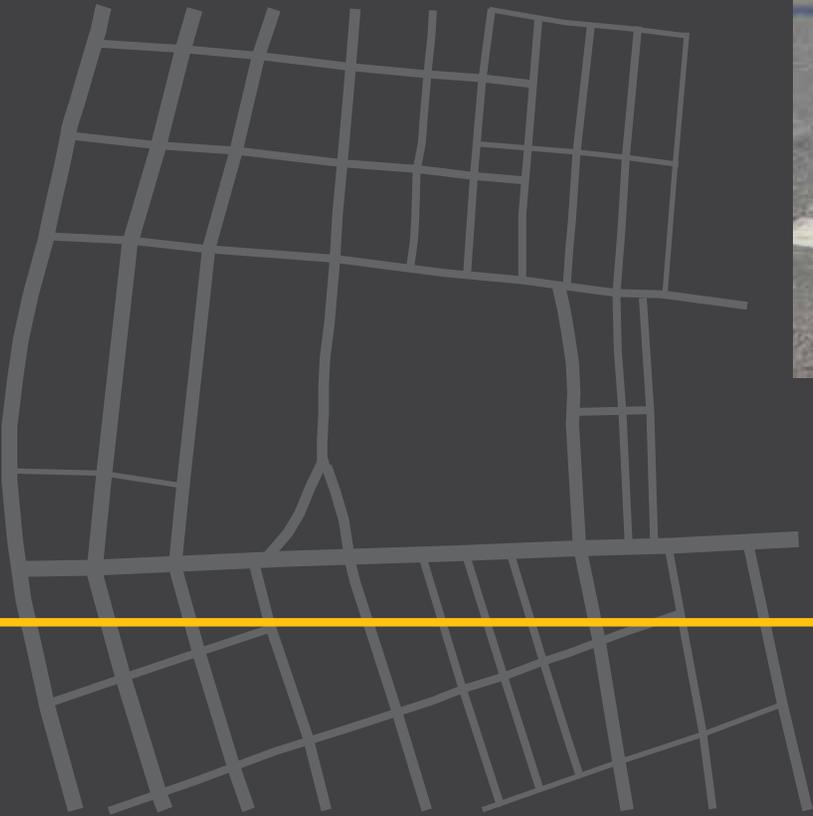
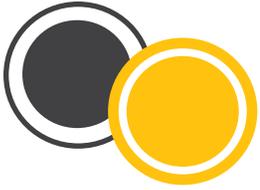


Transportation





Transportation along the Division Street Corridor

Transportation improvements along Division Street will be beneficial to the corridor by providing a safer street with more multi-modal options. These improved transportation facilities may also provide the “spark” needed to encourage economic development activity along the corridor. The following section will provide an overview of existing transportation conditions along the corridor, discuss transportation projects currently being planned by the city, and provide recommendations for improvements to Division Street.

Transportation Existing Conditions

The Division Street corridor has a mix of both updated and outdated transportation facilities. An evaluation of the existing transportation conditions is a vital part of determining recommendations for transportation improvements along the corridor. Division Street is approximately 0.8 miles running west to east from Front Street to the railroad.

Traffic Patterns

Traffic on Division Street is one-lane in each direction for the majority of the corridor. There is additionally one lane of parking in each direction along most sections of Division Street, although some areas do have parking restrictions for bus stops. The exception to the above configuration is between Front Street and 2nd Street. In this area there are two lanes of traffic heading west and turning north onto Front Street and one lane of traffic heading west and turning south onto Front Street. Addi-

tionally there is one lane of traffic heading east from Front Street (Figure 20). Division Street acts as the “divide” of the traffic patterns on Front Street. North of Division Street, Front Street has two-way traffic heading north, and south of Division Street, Front Street has one-way traffic heading south. By crossing Front Street, bicyclists/pedestrians can access Riverfront Park and the Capital Area Greenbelt. *Figure 21* provides an illustration of existing traffic patterns on Division Street.



Figure 20. Facing east on Division Street at the intersection of Division Street and Front Street

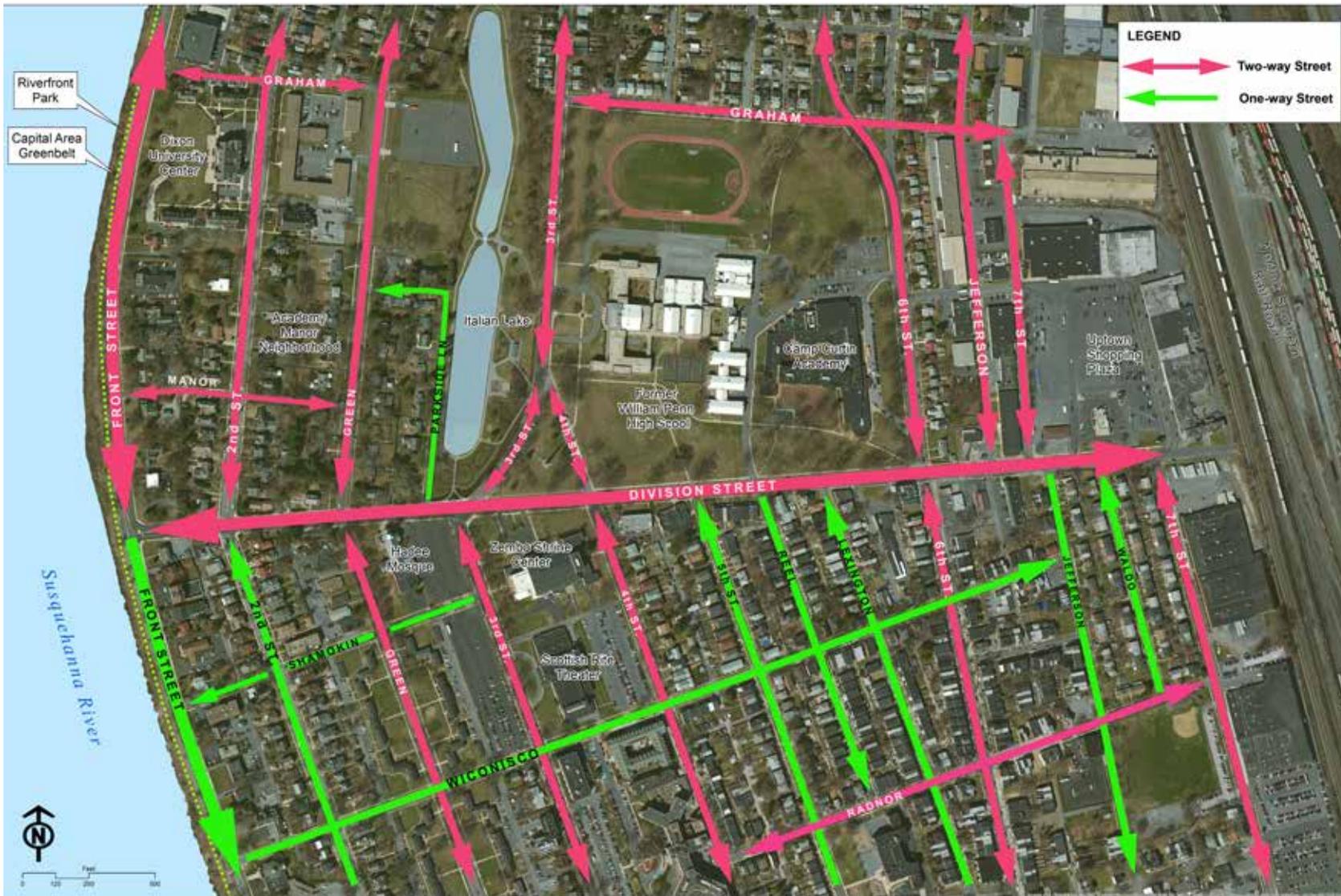
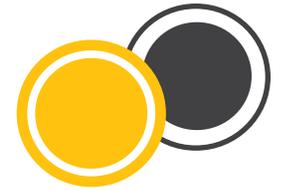
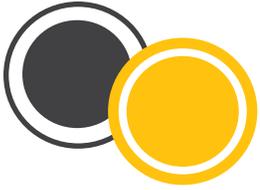


Figure 21.
Diagram of traffic patterns on Division Street



Road Width

The width of Division Street is fairly consistent throughout the corridor at approximately 46 feet. This wide street allows for the two lanes of traffic and parking that are present throughout the majority of the corridor. The width of the roadway likely contributes to speeding along the corridor which is signed as 25 miles per hour. Drivers feel a sense of openness around them which leads to increased speeds (Speck, 2014). One benefit of the wide street width is that it allows for greater flexibility for the potential reconfiguration of the roadway, without the need to acquire right-of-way, which can be costly.

Intersections

There are two traffic signals along the corridor located at the intersections of Division Street with 2nd Street and 6th Street. Both are four way signals. The intersection of 2nd Street and Division does include standard crosswalks. Those running north to south are in fair condition, but those running east to west are barely visible. No pedestrian signals or lights are present at this intersection (*Figure 22*).

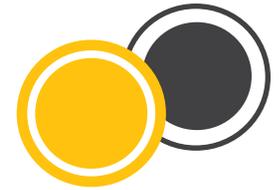


*Figure 22.
Intersection of
2nd Street and
Division Street
looking north*

Standard crosswalks are also present at the intersection of 3rd Street and Division Street. The crosswalks run east to west only and are in poor condition (*Figure 23*).



*Figure 23. Crosswalk at 3rd and
Division Street looking east*



The crosswalks and signalized intersection at 6th and Division streets is in stark contrast to the previously discussed 2nd Street intersection. A four way traffic signal is present at the intersection and continental crosswalks are present in each direction. This type of crosswalk has greater visibility than the standard crosswalk. Additionally light poles have been updated at this intersection and have a decorative quality to them not seen at the 2nd Street intersection (*Figure 24*). Pedestrian signals are also present at this intersection (*Figure 25*). Although the pedestrian facilities at this intersection are the best along the corridor, the approximately 46 foot crossing distance can be intimidating to some pedestrians.



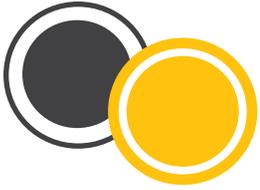
Figure 24. Division Street & 6th Street intersection looking southeast



Figure 25. Pedestrian crossing signals at the intersection of Division Street & 6th Street

Sidewalks

Sidewalks are present throughout the corridor. The width throughout the majority of the corridor is approximately 6 feet; however, it narrows to approximately three feet in the eastern section of the corridor between Jefferson Street and 7th Street. The conditions of the sidewalk vary throughout the corridor. Some areas appear to have been recently replaced including ADA compliant curb ramps; others are not ADA compliant and are cracked and uneven. Additionally, there appears to be a lack of enforcement in terms of shrubs being overgrown and blocking the sidewalks. For example, the northern sidewalk just east of Second Street has overgrown shrubs, which narrows the sidewalk to approximately two-to-three feet. A wheelchair would not be able to utilize this



area of the sidewalk due to the overgrown plants. *Figure 26* illustrates the range of sidewalk conditions along the corridor.



Figure 26. Contrasting sidewalk conditions along the corridor

Street Lights

There are approximately 30 street lights located along the Division Street Corridor. As previously discussed, the lighting at the 6th Street intersection has been improved. The remainder of the lighting along the corridor is similar to that shown in *Figure 27*. The lighting is not at a pedestrian scale and is visually unappealing. Additionally the trees along the corridor likely block the light produced in sections of the corridor.

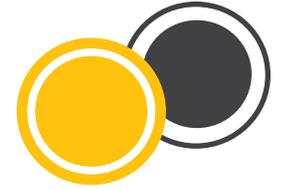
Public Transit

The Division Street Corridor is accessible by public transit through the Capital Area Transit (CAT) bus service. The two bus routes that service the corridor are the #3 Third Street and #6 6th Street. Both routes include stops at the Uptown Shopping Center. *Figure 28* illustrates the routes of the #3 and #6 CAT buses in the area of the corridor.

The #3 provides service along the majority of Division Street from the intersection with Division Street to the Uptown Shopping Center. Based on the schedules of the #3 and #6 routes, a bus should be present at the Uptown Shopping Center approximately every 15 minutes between 7 a.m. and 6:30



Figure 27. Example of street lighting along the Division Street Corridor



p.m. on weekdays. Bus service is less frequent on the weekends, but does service the Uptown Shopping Center at approximately 45 minute intervals, although at some points in the day the service is every 15 minutes. The #6 provides less service directly on the Division Street Corridor but does include stops at the intersection of 6th Street and Division Street (refer to *Figure 28*) and at the Uptown Shopping Center. The bus shelter at 6th Street is the only pedestrian/transit shelter along the corridor (*Figure 29*). The #3 and #6 routes are combined to form the 3/6 Night Loop which travels Division Street between 3rd Street and 6th Street. The latest service to the corridor is 9:30 p.m. on weekdays and 10:25 on Saturdays. No bus service is available on Sundays or holidays.

Figure 30 provides an overview of the existing transportation conditions along the corridor.



Figure 29. CAT bus and shelter at the intersection of 6th Street & Division Street

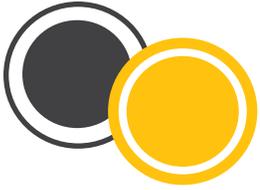


Figure 28. CAT bus routes services the Division Street Corridor





Figure 30. Overview map of existing traffic features with photographs



U.S. Census Bureau American Community Survey Transportation Data

According to the U.S. Census Bureau American Community Survey 2014 5-Year estimates, the majority of the residents in the study area commute to work by automobile. The percentages of each block group in the study area that reported using a vehicle, public transportation, biking, or walking to work are shown in *Table 7*. Block Group 3 is the only block group that has a large percentage of workers using public transportation. Block Group 4 has the largest number of workers that walk to work at 4%. Refer to the location of these Block Groups in *Figure 15*.

Table 7. Commuting Data for Division Street Corridor Residents

	Vehicle	Public Transportation	Bike	Walk
Census Tract 209, Block Group 1	87%	11%	0	2%
Census Tract 209, Block Group 2	100%	0	0	0
Census Tract 209, Block Group 3	53%	43%	0	2%
Census Tract 209, Block Group 4	79%	9%	0	4%

Source: 2014 ACS 5-Year Estimates Table S0802

Strengths and Weaknesses of Transportation Facilities along the Division Street Corridor

Table 8 summarizes the strengths and weaknesses of the transportation facilities along the Division Street Corridor.

Proposed Transportation Projects

The City of Harrisburg is currently in the process of making improvements to its transportation facilities. The city recently completed the widening and addition of a bicycle lane along Front Street. Additionally the city is considering several transportation-related projects in the areas adjacent to or within the Division Street Corridor.

2nd Street Two-Way Conversion

One project that is being proposed by the Mayor’s Office is the conversion of 2nd Street to two-way traffic south of Division Street. As noted in the Existing Conditions section, 2nd Street is one-way heading north to the south of Division Street and has two-way traffic north of Division Street. PennDOT agreed with the city that the project is feasible, but that it would require improvements to 2nd Street and to other roadways within the city in order to safely accommodate the redistributed traffic (Vendel, 2015b). This traffic pattern had provided three lanes traveling north on 2nd Street, helping traffic to exit the city, but also had essentially cut residents to the east of 2nd Street off from the river, due to the amount and speed of traffic along 2nd Street. The plan would divert traffic to 7th Street and would convert 7th Street to two-lanes northbound to accommodate the increased traffic.

Additionally PennDOT recommended that the two-northbound lanes would need to continue on Division Street to the intersection with 2nd Street. PennDOT specifically mentioned that the intersection of 7th Street and Division Street will need to be redesigned to provide access to the Uptown Shopping Plaza (Vendel, 2015b). *Figure 31a* shows a diagram of the proposed traffic patterns.

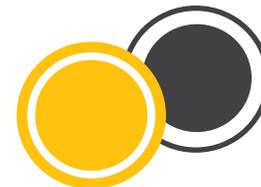


Table 8. Strengths and Weaknesses of transportation facilities along the Division Street Corridor

Transportation Component	Strengths	Weaknesses
Lighting	<ul style="list-style-type: none"> Approximately 30 street lights along the corridor Lights at 6th Street Intersection have been updated 	<ul style="list-style-type: none"> Approximately 30 street lights along the corridor Lights at 6th Street Intersection have been updated Lighting blocked by trees Not at a pedestrian scale Lighting poles and fixtures are not visually appealing
Sidewalks	<ul style="list-style-type: none"> Sidewalks are present in the majority of the corridor Some areas of sidewalk have been updated and ADA compliant curb ramps installed 	<ul style="list-style-type: none"> Sidewalk width and conditions vary throughout the corridor Sidewalk is need of repair or replacement throughout the majority of the corridor Not ADA compliant Maintenance by residents not being enforced
Roadway Width	<ul style="list-style-type: none"> Wide width allows for more opportunities to reconfigure the roadway without the need to purchase right-of-way 	<ul style="list-style-type: none"> Wide widths result in speeding Long areas for pedestrians to cross
Street Patterns	<ul style="list-style-type: none"> Space for parking on both sides of street One lane of traffic in each direction 	

Transportation Component	Strengths	Weaknesses
Crosswalks	<ul style="list-style-type: none"> 6th Street crosswalks are well maintained and visible 	<ul style="list-style-type: none"> Not enough marked crosswalks Pedestrians cross in the middle of the roadway 2nd and 3rd Street crosswalks are faded and hard to see
Bus Service	<ul style="list-style-type: none"> Bus service is frequent during the weekdays 	<ul style="list-style-type: none"> Only one bus shelter along corridor

In order to further investigate some of the proposed additional roadway work for the conversion of 2nd Street, the city recently conducted an engineering study of 6th, 7th, and Division Streets Harrisburg (Malawskey, 2015). The study specifically looked at converting 7th Street north of Maclay to one-way traffic, pedestrian concerns at the Pennsylvania Higher Education Assistance Agency office on Seventh, and the possible addition of bike lanes on North 6th and Division streets. The Mayor of Harrisburg stated that the increased traffic on 7th Street could provide an “economic boost” to the Uptown Shopping Center. A draft design concept for Division Street was produced and is provided as *Figure 31 b* for reference. It includes the addition of a roundabout, bike lanes, improved crosswalks, and traffic calming measures.

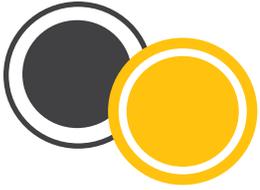


Figure 31 a. Diagram of proposed traffic patterns on and around Division St.

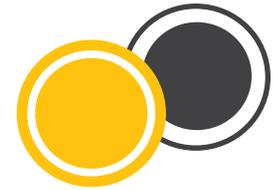


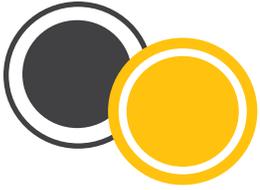
Figure 31 b. Draft design concept for Division Street provided by Navarro and Wright Consulting Engineers, Inc.

Division Street Bridge

The City and the Harrisburg Area Transportation Study (HATS), the Metropolitan Planning Organization (MPO) for the region including Dauphin County, Cumberland County, and Perry County, have also identified the construction of a bridge across the Norfolk Southern Railroad tracks at Division Street as a proposed long-term project. The bridge would connect Division Street with Industrial Boulevard. The bridge would serve as a connection between Downtown and Uptown with the Farm Show Complex and Harrisburg Area Community College located off of Cameron Street. The proposed bridge would also provide access to 1-81 and US 322 at the northern approach to the city, which

may help to reduce traffic on Cameron Street. The bridge would provide another point of access across the railroad yard which has split the city since the 1800s. According to the HATS Long Range Transportation Plan (LRTP), the project is considered key to the city's revitalization (HATS, 2014). The project was first added to the LRTP during the Reed mayoral administration, but was then removed during the Thompson administration and just recently added to the 2015 LRTP update.

The price for the project is estimated to cost \$46 million. The bridge project scored 9 out of 10 points based on the project ranking criteria in the LRTP. This identifies the project as a high benefit project for the city and the region (HATS, 2014). Based on discussion with both city rep-



representatives and MPO representatives, the project is identified as a high priority project, but is not identified as an immediate project need due to the high cost associated with the project. In order for the project to move forward on an accelerated time line, there is a need for the funds to be identified and also for there to be the political will for the bridge.

CAT Circulator

Capital Area Transit (CAT) has a desire for a circulator route within the city. Most CAT transit route currently also serve the suburbs surrounding Harrisburg and work to move commuters into and out of the city. A dedicated city circulator route would provide for more often and consistent service within the city. CAT would also like to see the installation of preemptive lights for buses, which would allow buses to have priority access through intersections, similar to how emergency responders can trigger lights to change.

Transportation Recommendations

In an effort to improve the Division Street corridor, it is recommended that the corridor be transformed into a complete street, as well as green street that provides a variety of benefits, including improved functionality, safety, aesthetic, social and environmental benefits. Recommendations of how to transform the corridor are provided in this section.

Street Pattern Changes

In order to accommodate traffic heading north within the city following the conversion of 2nd Street to a two-way street, it is recommended that Division Street be modified. Some of the traffic from 2nd Street will be

re-routed onto 7th Street which will feed into Division Street. Division Street will provide the connection for traffic to access Front Street and Interstate 81. The approximately 46 foot roadway on Division Street can accommodate this new street pattern. At the time of this restriping, it is also recommended that a bike lane be added in both directions. This design would include:

- Two 10 foot lanes heading west
- One 10 foot lane heading east
- Two 6 foot bike lanes (one heading east and one heading west)

The redesign would result in the removal of parking lanes from both sides of Division Street. It is anticipated that any parking need can be met through the use of the surrounding residential streets and in the parking lots of the businesses and institutions located along the corridor. This results in a total of 42 feet of encumbered roadway space. The remaining four feet could be used to incorporate traffic calming measures along the roadway such as a center median. *Figure 32* provides a cross section of the existing and proposed street patterns.

The existing condition of the wide street with low parking density creates a wide effective width of the street and provides virtually no calming effect (Daisa & Peers, 1997). Our recommendation involves adding an additional lane of traffic, however all lanes of traffic will be narrowed. Narrowing traffic lanes has been shown to cause drivers to reduce speeds. The Project for Public Spaces notes that traditional traffic engineering calls for 12-13' lanes; however, newer evidence has shown that nine foot lanes can be safe for driving (2015). Some of the benefits associated with slower traffic include:

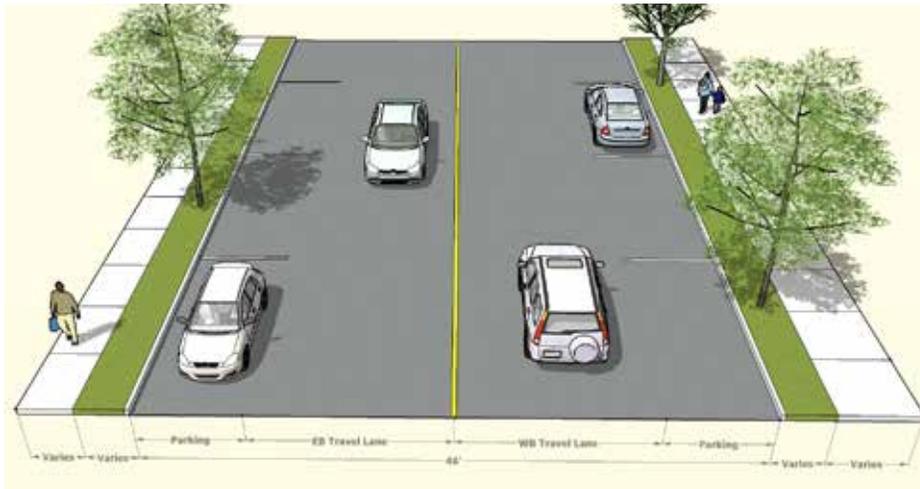


Figure 32. Cross Section of Existing Street Patterns



Figure 32. Cross Section of Proposed Street Patterns

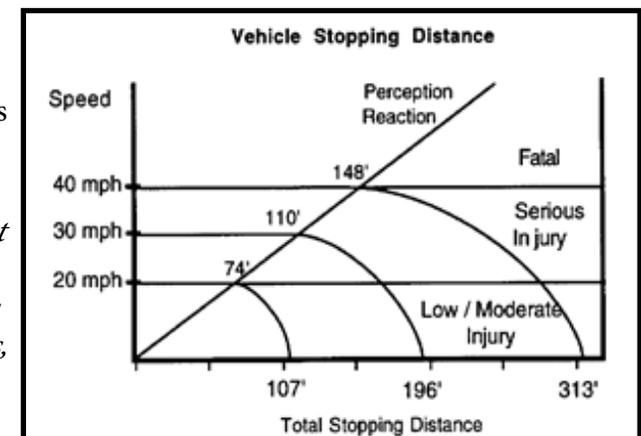
- Reducing the severity of accidents
- Reducing noise
- Improving livability (Daisa & Peers, 1997)

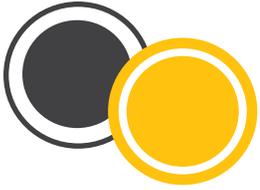
Bike Lanes

The addition of bicycle lanes to the street is another reason to keep speeds low along the corridor. *Figure 33* shows that the severity of pedestrian and bicycle accidents is reduced as speed is reduced. Two bike lanes are proposed - one traveling west and one traveling east. The bike lanes would be located closest to the curb and would be six feet wide. According to the National Association of City Transportation Officials (NACTO) the researched benefits of designated bike lanes include:

- Increasing bicyclist comfort and confidence on busy streets.
- Creating separation between bicyclists and automobiles.
- Increasing predictability of bicyclist and motorist positioning and interaction.
- Increasing total capacities of streets

Figure 33. Pedestrian and bicyclists accident severity with vehicles at various speeds (Source Daisa & Peers, 1997)





- carrying mixed bicycle and motor vehicle traffic.
- Visually reminding motorists of bicyclists' right to the street (2014).

As part of the Tri-County Regional Planning Commission (TCRPC) Regional Bicycle Connections Study, TCRPC developed design guidelines for bicycle facilities. The following elements from these design guidelines are recommended to be included in the proposed bike lanes along Division Street:

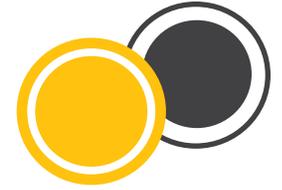
- Bike lane width - the recommended minimum width is five feet when adjacent to the curb and gutters or three feet more than the gutter pan width if the gutter pan is larger than two feet.
- Six inch white line separating bike lane from vehicle travel lanes. The proposed six foot wide bicycle lane exceeds the five feet minimum and includes the six inch white line.
- Colored bike lanes - increases the visibility of the bike lane - green is the approved color and should be skid resistant and retroreflective. The color should stop at driveways and intersections.
- Signage - the following signage (*Figure 34*) is recommended to be added along the corridor to aid in identifying the bike lanes (TCRPC, 2015).

Figure 34. Recommended bike lane signage



Figure 35. Recommended bicycle design guidelines to be incorporated along Division Street Source: TCRPC Regional Bicycle Connections Study Design Guidelines

Figure 35, from the TCRPC design guidelines, shows several of the bicycle elements that should be incorporated into the Division Street Corridor; specifically signage, the wide white line and the width of the bicycle lane. Additionally, the bike lane will serve as connection or continuation from Riverfront Park and the Capital Area Greenbelt located along Front Street. If a bridge, whether bicycle/pedestrian only or multi-modal, would be built across the railroad tracks at the eastern end of Division Street, the bike lanes would create an important connection for bikers in the city to access Harrisburg Area Community College and Wildwood Park. Bike lanes are also proposed for the two-way conversion of 2nd



Street, which would connect to the Division Street bike lanes at the intersection of 2nd Street and Division Street and thus form a bicycle network within the city. It is recommended that bike racks be included along the corridor to encourage bikers to stop along the way. Potential locations of bike racks include Italian Lake and the Uptown Shopping Center.

Streetscape

In addition to improvements within the roadway, it is recommended that streetscape improvements be made to the entire corridor. Elements of the streetscape should include:

- Sidewalks: Upgrades to the sidewalks to make them all six feet wide and ADA compliant. As noted in the Existing Conditions, the sidewalk throughout the corridor varies in terms of width and maintenance. Areas of sidewalk which have recently been upgraded and meet current safety and ADA standards will not need to be updated as part of these improvements (example shown in Figure 36).
- Crosswalks: Upgrades at crosswalks to make them more visible to drivers and to give them an aesthetic treatment and the addition

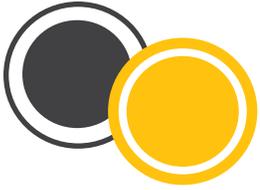
Figure 36. Updated sidewalk at the intersection of Division and Green Streets



of crosswalks along the corridor. Complementing recommendations in the “Division Street Master Plan - Draft” (refer to *Figure 31*) it is recommended that four-way crosswalks be added to the intersections of Division Street with Green Street, 3rd Street, 4th Street, and Reel Street. It is recommended that these crosswalks have a decorative quality to them. It has been observed that bricks and pavers used for decorative crosswalks often become cracked or may sink into the roadway. It is recommended that a stamped asphalt application be used, as it is more durable and will require less future maintenance. An example of such an application is shown in *Figure 37*. This type of crosswalk design has been approved for use by PennDOT (Derck & Edson, 2014) and has a design standard as shown in the center of *Figure 38*.

*Figure 37.
Example
of stamped
asphalt cross-
walk Source:
Decorativeas-
phalt.com*





In addition to the new crosswalks, it is recommended that the existing crosswalks in the corridor be upgraded to match this standard. Additionally and as recommended in the “Division Street Master Plan - Draft”, the area between Parkside Lane and 3rd Street should receive a larger aesthetic surface treatment to act as a gateway to Division Street and Italian Lake.

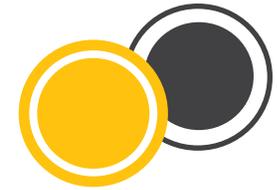


Figure 38. PennDOT Decorative Crosswalk design standards Source: Derck & Edson, 2014

- Street Lighting: The City of Harrisburg is in the process of upgrading its streetlights to LED in order to increase energy efficiency. It is recommended that the lights along the Division Street Corridor are replaced with aesthetically pleasing lighting and that LED lamps be used in these new lights. In addition to replacing the existing streetlights, it is recommended that pedestrian-scale lighting be added along the corridor under the taller overhead lighting (as is currently in place) acting as supplemental lighting. The taller overhead lighting will be able to produce light beyond the tree canopies. The pedestrian scale lighting will illuminate the sidewalks (Federal Highway Administration, 2012). Better lighting along the corridor will also make the street feel safer and more accessible to pedestrians in the evenings. An example of pedestrian scale lighting is shown in Figure 39.

Figure 39. Example of pedestrian scale lighting Source: Seattle Pedestrian Master Plan





The diagram below from the Federal Highway Administration's (FHWA) Lighting Handbook (*Figure 40*), shows a recommended layout for the installation of pedestrian and overhead lights on a four lane urban road, which would be applicable to the Division Street Corridor.

Other streetscape recommendations along the corridor include:

- **Street Trees:** Addition of street trees. The city should do an inventory of and assess the health of current trees along the corridor. Currently some sections of the corridor have large street trees while other areas are relatively open, in terms of tree cover. It is recommended that a variety of trees be planted that will complement the existing trees. By

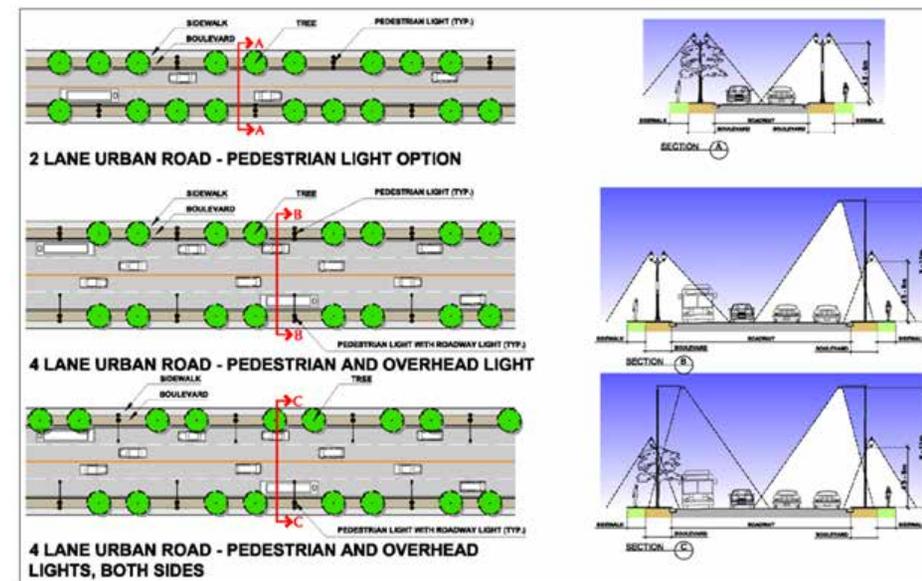


Figure 40. FHWA Street lighting diagram Source: FHWA Lighting Handbook (2012)

planting a variety of tree species, it will provide ecological diversity, which may be beneficial if a disease were to strike a certain type of tree (for example Dutch Elm Disease).

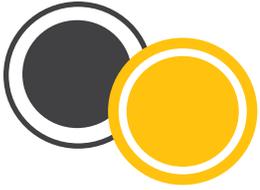
- **Streetscape Amenities:** Addition of benches and trash/recycling cans. It is recommended that benches and trash/recycling cans be installed along the corridor to further complement the proposed streetscape plan and encourage residents/passersby to participate in the maintenance of the area. It recommended that four sets of trash/recycling cans and benches be placed along the corridor, two on each side of Division Street. Examples of some simple yet classic designs for a bench and trash/recycling cans are shown below in *Figures 41* and *42*.



Figure 41. Example bench design for incorporation into corridor Source: Landscapeonline.com



Figure 42. Example trash and recycling can design for incorporation into corridor Source: Recycleaway.com



- **Bus Stop Shelters/Amenities:** There are multiple signed bus stops along the corridor, but only one bus stop shelter/bench which is located at the intersection of 6th Street and Division Street. Updating the existing and providing several additional benches or shelters along the corridor may encourage additional transit users. It is recommended that two designated transit stops be incorporated into the Uptown Shopping Center. The bus shelter should be designed to fit the aesthetic of the corridor and could also be designed to incorporate a green roof. In 2011, a green roof was installed on a bus shelter in Philadelphia as a way to inspire property owners to think about ways that they could incorporate green infrastructure (Velazquez, 2011). *Figures 43 and 44* illustrate the design used for the green roof bus shelter in Philadelphia. Something similar could be done here to get Harrisburg residents to start thinking about green initiatives they can implement at home.

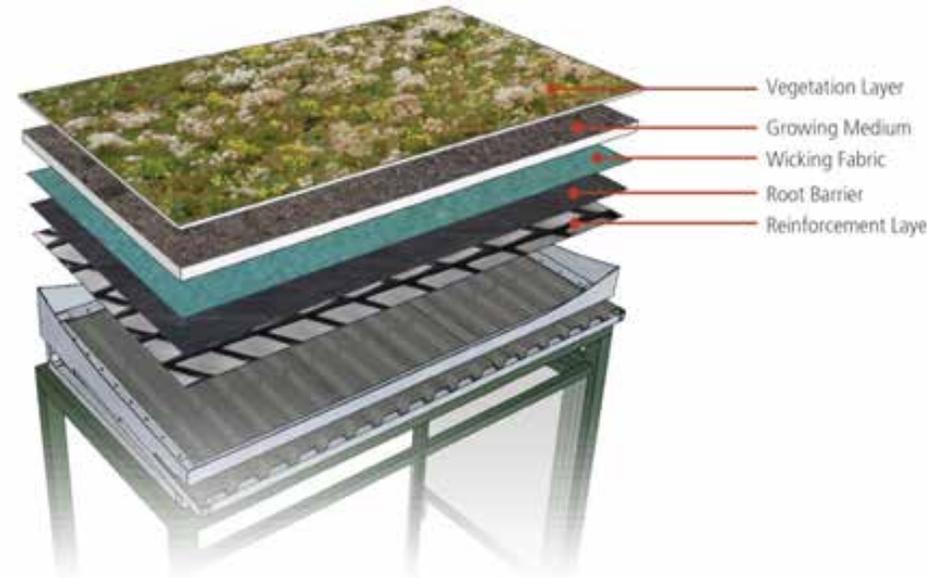
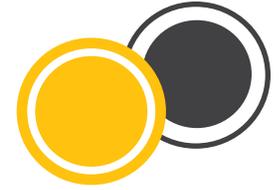


Figure 43. Conceptual drawing of the green roof bus shelter installed in Philadelphia Source: Velazquez, 2011

Figure 44. Diagram of green roof elements installed on the bus shelter in Philadelphia Source: Phillywatersheds.org

Roundabout

One of the most significant recommendations of the “Division Street Master Plan - Draft” is the inclusion of a roundabout at the intersection of 7th Street and Division Street. A roundabout at this location will help to efficiently and safely move traffic from 7th Street onto Division Street after the conversion of 2nd Street to a two-way street. According to PennDOT (2016a), roundabouts provide both safety and capacity benefits over traditional signalized intersections. Some of these benefits include:



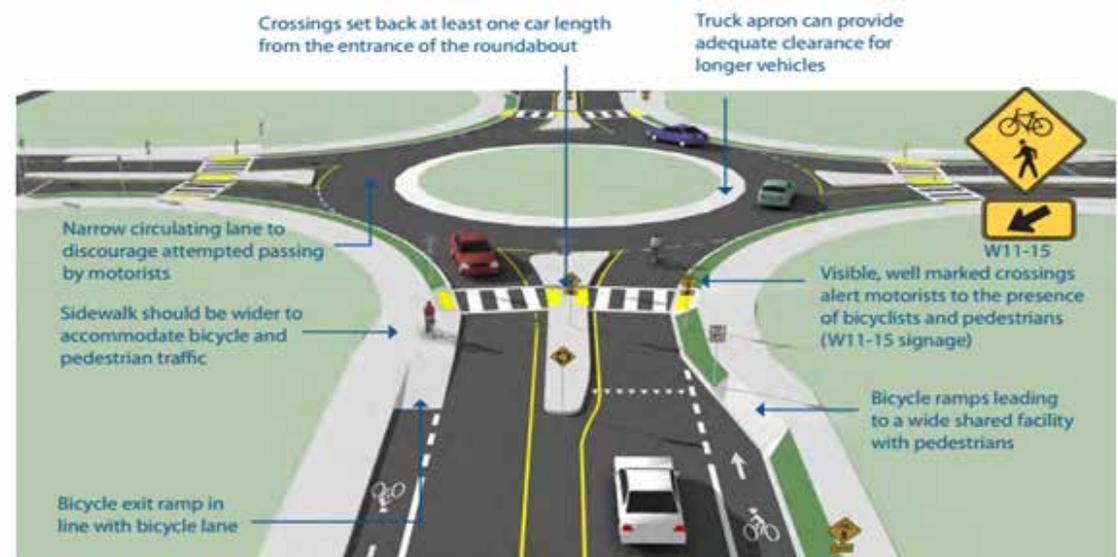
- Fewer conflict points, slower speeds, and easier decision making
- Compared to a signal, studies show that roundabouts provide a 90 percent reduction in fatal crashes, 75 percent reduction in injury crashes, 30-40 percent reduction in pedestrian crashes, and 10 percent reduction in bicycle crashes.
- Improve pedestrian safety by offering two simple crossings of one-way traffic moving at much slower speeds.
- Carry about 30 percent more vehicles than similarly sized signalized intersections during peak flow conditions.
- Cause almost no delay during off-peak conditions, while traffic signals can cause delay to side street and left-turning traffic.

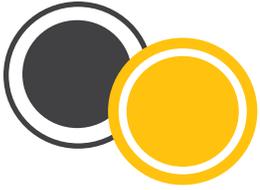
Traffic calming

The narrower traffic lanes will help to slow down speeds along the Division Street Corridor. Another element to increase traffic calming is the installation of a center vegetated median which can also serve as an area to incorporate green infrastructure. The recommended median would be four feet wide which is the FHWA recommended minimum width (FHWA, 2010). In addition to calming traffic the median would serve as a refuge for pedestrians crossing at designated crosswalks who are not able to cross the entire width of the roadway at once.

The diagram below from the TCRPC Bicycle and Pedestrian Facility Design Guidelines provides an overview of how bicyclists can be accommodated through the roundabout (Figure 45). Bicyclists have two options when it comes to navigating the roundabout. They may either choose to ride through the roundabout and share the lane with motorists or they may choose to ride onto the sidewalk and share the facility with pedestrians. Bicycle ramps are built into the sidewalk at the end of the bicycle lane to allow bicyclists this option (TCRPC, 2015). These design recommendations from TCRPC should be incorporated into the roundabout design.

Figure 45. TCRPC design guidelines for accommodating bicyclists in roundabouts Source: TCRPC, 2015





Green Infrastructure

While the other traffic improvements are being implemented, it makes good sense to incorporate green infrastructure elements at the same time. This will assist Capital Area Water to meet the goals of its green infrastructure plan, and to slow down, capture, and treat stormwater runoff, while decreasing the burden on the traditional sewer systems.

Rain gardens and bioswales provide landscaping, clean air, and habitat for local plants and animals. These elements should be incorporated along the streetscape both in the median and at the edge. These elements would help to give the street scape a varied and functional character. Examples of types of green infrastructure that could be incorporated along the corridor include:

- Bioswales - vegetated, mulched, or xeriscaped channels that provide treatment and retention as they move stormwater from one place to another. Vegetated swales slow, infiltrate, and filter stormwater flows (EPA, 2015).
- Rain Gardens - shallow, vegetated basins that collect and absorb runoff from rooftops, sidewalks, and streets. This practice mimics natural hydrology by infiltrating, and evaporating and transpiring stormwater runoff. Can be installed in almost any unpaved space (EPA, 2015).”

Figure 46 shows a potential design for a bioswale or rain garden located within the median.

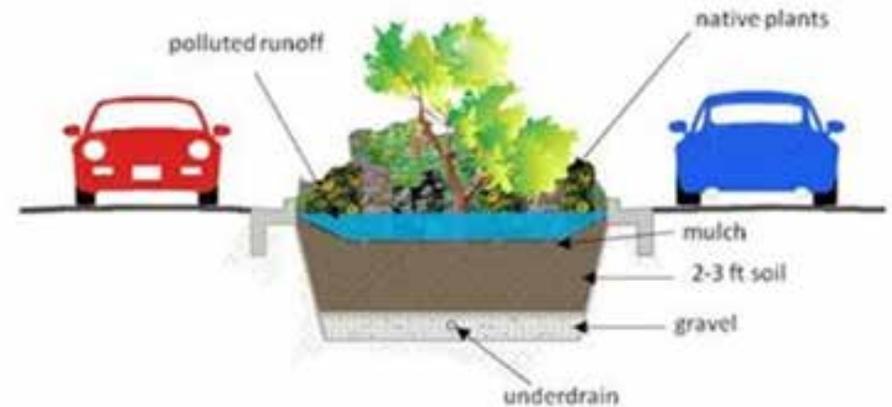
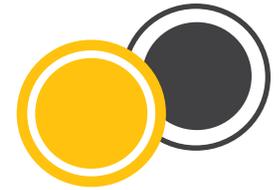


Figure 46. Potential design of a rain garden or bioswale located in a median Source: City of Arlington, VA Green Infrastructure

Bike share

Recently there have been discussions about bringing bike share to the Harrisburg region and a feasibility study is being funded through the Tri-County Regional Planning Commission to determine if the region can support a bike share. If the City or region moves forward with the bike share concept it is recommended that two stations be included along the Division Street Corridor. The two recommended locations are at Italian Lake, which is more likely to attract recreational users, and the Uptown Shopping Plaza, which is more likely to be used for practical needs, such as shopping.



Circulator bus service

CAT should conduct studies to determine the need and anticipated usage for a Harrisburg City circulator route. If the need for a route is justified it should include stops along Division Street and should use the Uptown Shopping Plaza as a key stopping point in Uptown in order to provide shopping access for city residents.

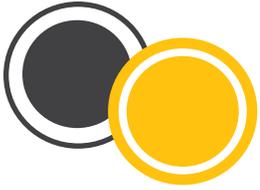
Bridge

As mentioned previously, the City and HATS are aware of the need for a bridge that would connect Division Street to Industrial Road, which is located to the east of the railroad tracks. This bridge is a potential key component to the economic development of the Division Street Corridor and Uptown Harrisburg. This plan highly recommends that the City and HATS coordinate to make this project a priority for the City and the region and work together to identify potential funding sources for the project. It is recommended that the design of the bridge include formliners (create a pattern in the cement which can also be painted to mimic stone or brick) and other elements to fit into the context of the Division Street Corridor and to not be an eyesore and a “concrete giant” that imposes itself on the corridor. Additionally, the bridge should include both pedestrian and bicycle facilities as recommended along the Division Street Corridor to truly serve as a connection for all modes and to create a continuous bicycle/pedestrian route from the Capital Area Greenbelt to Italian Lake and Riverfront Park.

Figure 47 is a conceptual drawing for the Riverdale Bridge over CSX in Riverdale Park, Maryland. A similar design is recommended for the Division Street Bridge. Note the use of formliners and the inclusion of sidewalks and bike lanes.



Figure 47. Conceptual drawing of the proposed Riverdale Bridge over CSX Source: Thewashcycle.com

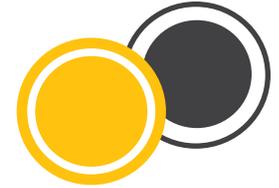


sidewalks and bike lanes.

If it is determined that a multimodal bridge over the railroad will not be advanced to construction, it is recommended that a bicycle/pedestrian bridge be constructed to serve as a connection from Uptown to the Cameron Street area of Harrisburg.

City Wide Complete Streets Policy

According to the Tri-County Regional Planning Commission, the benefits of Complete Streets are that they promote pedestrian and bicyclist safety, promote non-automobile travel, and provide transportation choices for those without auto access (2014). It is recommended that the city put into place a City Wide Complete Streets policy. By implementing such a policy, it will ensure that complete street designs are considered for all transportation related improvements and investments taking place within the city. Without such a policy in place, improvements for bicyclists, pedestrians, and public transportation may more easily be cut due to budget or time constraints. An implementation plan should also be developed to support the City Wide Complete Streets policy. The policy itself will not result in changes, unless it is implementable. One example of this is in New Haven, Connecticut. New Haven established a steering committee to focus on complete streets policy development, establish a complete streets design manual, encourage community development, and to provide education (American Planning Association, 2010). It is recommended that Harrisburg work closely with PennDOT District 8 and the Harrisburg Area Transportation Study on the development of its policy and implementation. Both of these entities will be able to provide valuable insight to the city as to which policies and tools will be most effective.



Complete streets can benefit Harrisburg in many ways including:

- Improving public health,
- Sustainability,
- Increasing property values,
- Generating economic revitalization,
- Increasing capacity, and improving mobility (Smart Growth America, 2016a).

Complete streets can help to stimulate the local economy as switching from driving to taking transit, walking, or biking will save residents thousands of dollars a year. This results in a “green dividend” meaning that the residents can then spend that money in different ways such as housing, restaurants, and entertainment (hopefully within the city) (Smart Growth America, 2016b). A complete street policy could also help to spur private investment along Division Street. One example of this was seen in Washington, D.C. Design improvements along a three-quarter mile corridor, including improved sidewalks and the addition of traffic signals, helped attract 40 businesses and nearly 200 new jobs, along with increases in sales and foot traffic (Smart Growth America, 2016b). Although this example is in a much larger city, it can be anticipated that the improved transportation facilities along the Division Street Corridor will make it more attractive for private investment.

The proposed transportation recommendations were shaped using insight from the Comprehensive Planning process and from stakeholder input. The recommendations support the Comprehensive Plan concepts of a connected bike network, better tree management, stormwater landscaping, city gateway roundabouts, local transit loops, and supports the two-way conversion of 2nd and 3rd streets.

Potential Sources of Funding

There are several funding sources that the city should consider as a way to reduce the overall cost of these transportation improvements to the city. *Table 9* outlines potential funding sources and key criteria related to eligibility for these funds. Based on the eligible project types and key criterion, the revitalization of Division Street appears to be a perfect candidate for these grants.

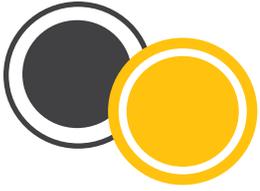
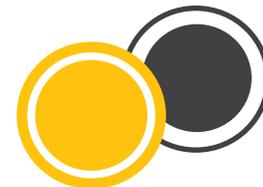


Table 9. Potential funding sources for proposed transportation improvements

Funding Source	Applicable Eligible Project Types	Available Funds	Key Criterion	Sponsor
Transportation Alternatives Program	<ul style="list-style-type: none"> • On- and off-road pedestrian and bicycle facilities • Infrastructure projects for improving non-driver access to public transportation and enhanced mobility • Community improvement activities • Environmental mitigation • Safe routes to school projects 	<ul style="list-style-type: none"> • Construction cost of at least \$50,000, but may not exceed \$1 million 	<ul style="list-style-type: none"> • Readiness for implementation • Safety • Consistency with local regional plans • Collaboration with stakeholders 	FHWA and PennDOT
PennDOT Multi-modal Transportation Fund	<ul style="list-style-type: none"> • Sidewalk/crosswalk safety improvements • Bicycle lanes • Bridges which will benefit state system and local economic development and greenways • Streetscape and lighting improvements 	<ul style="list-style-type: none"> • Total cost of \$100,000 or more • Not normally exceed \$3 million • Minimum 30% local match required 	<ul style="list-style-type: none"> • Economic conditions of the region • Consistency with local, regional, and statewide planning • Benefits to safety, mobility, economic competitiveness, and transportation system integration • Technical and financial feasibility • Number and quality of jobs to be created or preserved by the project • Regional nature of the project • Energy efficiency • Multimodal nature of the project 	PennDOT



Funding Source	Applicable Eligible Project Types	Available Funds	Key Criterion	Sponsor
Commonwealth Financing Authority Multimodal Transportation Fund	<ul style="list-style-type: none"> • Bus stops • Sidewalk/crosswalk safety improvements • Bicycle lanes • Bridges which will benefit state system and local economic development and greenways • Streetscape and lighting 	<ul style="list-style-type: none"> • Total cost of \$100,000 or more • Not exceed \$3 million • Streetscape amenities such as permanently affixed benches, trashcans and plantings cannot exceed 10% of the total project cost • Minimum 30% local match required 	<ul style="list-style-type: none"> • Economic conditions of the region • Consistency with local, regional, and statewide planning • Safety benefits • Technical and financial feasibility • Number and quality of jobs to be created or preserved by the project • Regional nature of the project • Energy efficiency • Capital efficiency of the project • Multimodal nature of the project 	Department of Community and Economic Development

Sources: PennDOT, 2016b; PennDOT, 2016c, and Pennsylvania Department of Community and Economic Development, 2016a