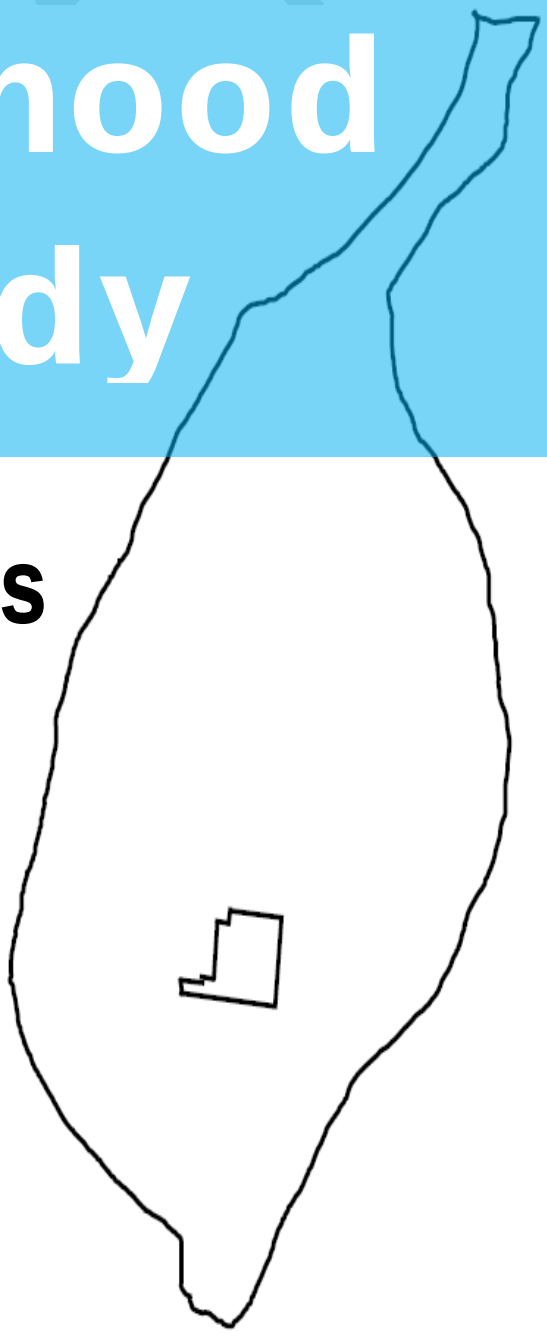
Tower Grove Neighborhood Traffic Study



City of St. Louis Ward 15

Prepared for:

City of St. Louis Board of Public Service

DRAFT: March 4, 2016

CBB TRANSPORTATION ENGINEERS+PLANNERS

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Executive Summary

Introduction

Study Background

Tower Grove Park

The City of St. Louis is rich with tradition and unique, historic neighborhoods; each with their own community landmarks and distinct sense of place. In recent years neighborhoods within Ward 15 have experienced growth and new development, which has impacted neighborhood access and circulation. Specifically, the South Grand Community Improvement District (CID) reports 100% business occupancy as a result of a Great Streets "road diet" that occurred within the last five years. While the enhanced economy promotes a higher quality of life, the increased traffic can add challenges to the existing transportation system that must be analyzed an addressed. Additionally, the Metro Grand route that operates on the eastern most border of Ward 15 is one of the most heavily used transit routes in the St. Louis region.

Ward 15, shown in **Figure 1**, encompasses all or part of five (5) St. Louis neighborhoods, and portions of two major regional attractions – Tower Grove Park and South Grand CID. Ward 15 Alderwoman Megan Green initiated this study after receiving multiple complaints related to traffic, circulation, access and pedestrian safety within the neighborhoods, specifically Tower Grove South. Currently residents feel unsafe when they try to walk around their neighborhood, and feel that traffic speeds are too high, and local streets are being used as cut-thru routes between destinations outside the districts. Walkable neighborhoods promote better public health, increased economic development and better quality of life. Additionally, it is important to promote active transportation and a well-connected system for residents to access the park as well as the adjacent business district.

The goal of this project is to prepare a neighborhood level street access and circulation study aimed at enhancing traffic and pedestrian safety. The plan develops recommendations for reducing traffic volumes and speeds on local streets and improving pedestrian safety. Many of the comments received by Alderwoman Green came out of residents in the Tower Grove South neighborhood, and that is the overall focus of the Ward 15 Neighborhood Traffic Study. The study makes recommendations to arterials and collectors within the study area that are in line with the City of St. Louis Complete Streets Ordinance (#68663) as well as the current Bike Saint Louis Plan.

The process included public engagement, stakeholder coordination, meeting with City officials, and analysis of key intersections, thorough data collection and a complete infrastructure inventory. Ultimately the study aims to use this information to develop recommendations that may be implemented within the Ward in the coming years through the use of Ward Capitol Improvement funds.

Figure 1: Ward 15 Map

Study Area

The study area is within Ward 15 of the City of St. Louis, shown in **Figure 1**. The ward encompasses all or parts of five (5) different neighborhoods including: Benton Park West, Dutchtown, Gravois Park, Tower Grove East and Tower Grove South. However, as indicated previously, because of the location of residents fling complaints, the focus of the study was Tower Grove South. The Tower Grove South neighborhood, divided into its representative quadrants, is shown in **Figure 2**. The Tower Grove South neighborhood boundaries overlap portions of both Ward 15 and Ward 10. Alderwoman Green, working in coordination with the Tower Grove South Neighborhood Coordination and other local neighborhood leadership groups, gathered comments from residents throughout this neighborhood in an effort to be inclusive. However, the Ward 15 study area was defined by Grand Avenue on the east side, Gravois Avenue and Chippewa to the south, Morgan Ford Road on the west and finally Arsenal street on the north.

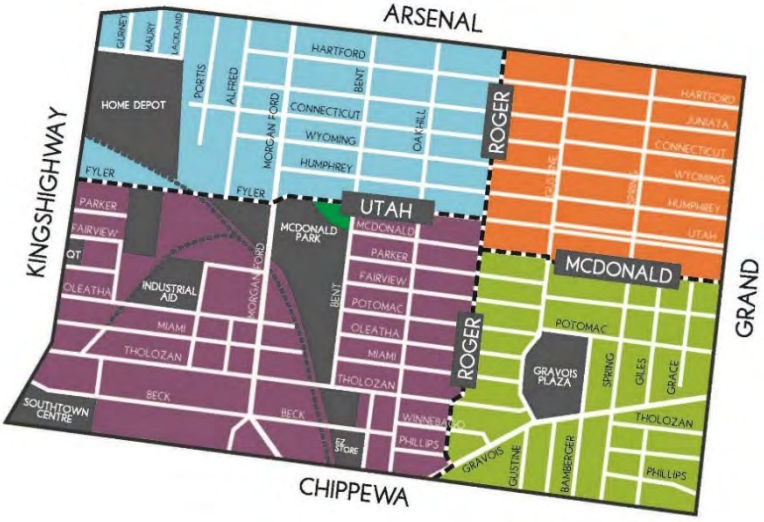


Figure 2: Tower Grove South Neighborhood

The study area is bounded by both principal and minor arterials, and routes that are heavily used within the region to connect both north-south and east-west. Because of this, residents are concerned the majority of the traffic on their neighborhood streets is cut-thru traffic trying to avoid traffic and congestion on the arterials while traveling to destinations not within the district. In addition to the increased cut-thru traffic, residents are concerned those motorists are not obeying the rules of the road and creating and unsafe environment for pedestrians within the community. The goal of this study is recommend traffic calming measures to be implemented within Ward 15 to enhance neighborhood safety, especially for pedestrians and bicyclists.

Study Process

The study began with a kick off meeting on Tuesday, September 2, 2015, attended by representatives from the City of St. Louis Board of Public Service, City of St. Louis Street Department, Tower Grove Neighborhoods Community Development Corporation, Tower Grove South Neighborhood Association, South Grand Community Improvement District, the 15th Ward Alderwoman Megan Green, and the consultant (CBB). At this meeting Alderwoman Green indicated specific concerns for the neighborhood that would help focus the study efforts. Based on this discussion, the City of St. Louis Board of Public Service and project team were able to determine an overall schedule that planned for field data collection in late September (to capture traffic volumes while schools are in session) and an initial neighborhood meeting in October where a neighborhood survey would also debut both in-paper and on-line.

Following the kick-off meeting CBB worked in conjunction with the City of St. Louis Street Department, Alderwoman Megan Green, and the South Grand CID to develop a survey (full survey in **Appendix A**) to be distributed throughout the Tower Grove South neighborhood. The survey was intended to solicit input from neighborhood residents about specific experiences, areas of concerns and information on preferred traffic calming measures they would be interested in seeing in their neighborhood. Door hangers were distributed by the community groups that provided the online survey link and information about the first public meeting.

The first public meeting was held on Monday, October 5, 2015 at the Carpenter Branch Library. At this meeting, the project team presented materials on the study process and solicited feedback on specific areas of concern from the residents to assist with focusing efforts moving forward. The public meeting feedback was summarized in a memorandum to the City (**Appendix D**). The survey remained active until the end of October and during this time, CBB continued to monitor the responses (**Appendix B**) and note areas of concern.

After the survey closed on October 19, 2015, CBB compiled a report outlining the responses to the survey, including the highlights, as well as complete documentation of comments related to areas of concerns and general notes for the Study (**Appendix C**). With this information, the project team also developed a plan to collect data based on public input (**Appendix E**). Data collection in November/December, 2015, included: peak period observations, complete infrastructure inventory, manual traffic counts, hose counts, origin-destination and speed data. CBB used the existing conditions data, field data, and issue identification to move forward with examining alternatives for the traffic calming recommendations.

The stakeholder and public engagement and existing conditions data were both utilized to formally identify the neighborhood "issues" for which mitigation alternatives would be developed. The project team spent time during December in the neighborhoods examining specific areas of concern and making notes about potential improvements. All of the compiled information, investigations, analyses, and some potential alternatives were synthesized into a draft report submitted to the City of St. Louis Board of Public Service at the beginning of January to gather feedback on the identified alternatives from City staff and Alderwoman Green.

The project team continued to investigate potential alternatives and recommendations. A second draft of the report, submitted in February, 2016, included the proposed recommendations for the study area. A second public meeting was then held in February, 2016, to share the findings and proposed recommendations with Ward 15 residents and gather additional feedback. Again using public input, the final recommendations were adjusted to reflect residential needs and concerns.

Finally, the process was compiled into this report that can be used as a planning document for Ward 15 in future years when determining where to spend Ward Capitol Improvement Funds. The report documents each step of the process and culminates with recommendations and conclusions.

Stakeholder Engagement

Meeting with City Officials

The study began with a kick off meeting on September 2, 2015 with representatives from the City of St. Louis Board of Public Service, City of St. Louis Street Department, Tower Grove Neighborhoods Community Development Corporation, Tower Grove South Neighborhood Association, South Grand Community Improvement District, the 15th Ward Alderwoman Megan Green and CBB. At this meeting Alderwoman Green and the community representatives indicated that residents are concerned about traffic issues throughout the ward including speeds (especially on the one-way streets), the potential for and perception of cut-thru traffic avoiding congestion on the major north-south arterials (Grand Boulevard to the east and Kingshighway Boulevard to the west), stop-sign compliance, and pedestrian and bicyclist safety. However, the study team was urged to focus on the residential streets more than the major arterials.

It was agreed that data collection (traffic volumes and speeds) would be critical to the investigation and that the data collection should be scheduled after area schools resumed in September. A general schedule was determined that included an initial public meeting and survey to gather input from residents in October. Data collection and evaluations, based on that input, would happen in November and December. Recommendations and a draft report would then be defined and submitted to gather feedback from City of St. Louis staff and Alderwoman Green. After incorporating their feedback, a second neighborhood meeting would be held in January to present the data, analyses, and recommendations and, again, gather feedback from residents. The project would be finalized with that feedback.

Neighborhood Survey

In conjunction with Alderwoman Megan Green, the City of St. Louis Street Department, and the South Grand CID, CBB developed a survey to be distributed online to gain feedback related to the Ward 15 Traffic Study. The goal of this survey was to solicit input from neighborhood residents about traffic concerns in the area and identify existing issues. Additionally, the study outlined specific traffic calming measures to determine what neighborhood residents would be interested in seeing implemented within their neighborhood.

The survey launched prior to the public meeting when door hangers were distributed throughout the neighborhood advertising the meeting date and survey link. Hard copies of the survey were also available at the public meeting. At the time the survey closed, 274 respondents participated. A copy of the survey can be found in **Appendix A.** The full documentation of survey responses can be found in **Appendix B**, and the final survey summary memorandum is found in **Appendix C**.

Demographics

Ninety – two (92) percent of survey respondents live within Ward 15 with the remaining eight (8) percent being a mix of business owners only or both business owners and residents. Seventy-nine

(79) percent of those that live in the ward own their house. The high level of home ownership indicates they will be more inclined to reside in their neighborhood for longer periods of time and therefore may have a higher sense of neighborhood pride.

The response breakdown by Ward residential area is shown in **Figure 3**. The map was divided into four quadrants when determining where respondents lived within Tower Grove South. The majority (48%) of the respondents live in the north east quadrant between Arsenal and Grand and McDonald and Roger. Twenty-seven (27) percent live in the northwest quadrant between Arsenal and Utah and Kingshighway and Roger. This indicates why pedestrian safety may be of high concern because ¾ (75%) of respondents live in quadrants bordered by Tower Grove Park. Fifteen (15) percent live in the southwest quadrant and 10 percent live in the southeast quadrant.

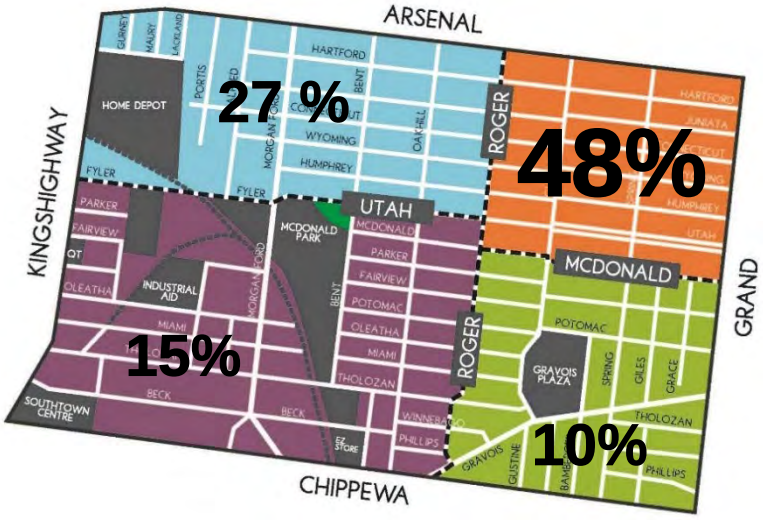


Figure 3: Breakdown of Survey Respondents by Quadrant

Thirty (30) percent of the respondents are in the age range 30 – 39; twenty-one (21) percent are in the age range 40 – 49 and 50 – 59, followed by fourteen (14) percent in the age range 20 – 29. The majority of the respondents fit three categories: Millennials, Gen Xers and Baby Boomers. Moving forward, transportation systems within the neighborhood need to be planned to meet all population needs. As the population ages, less elderly will drive, and given general millennial trends with a preference for active transportation and public transit, it is important to focus on pedestrian safety within the ward.

Concerns, Experience and Importance

As indicated in the kick off meeting, as well as at the public meeting, the survey confirmed that many residents are concerned about speeding within their neighborhood (65%). The other category that received a majority of very concerned was pedestrian safety at sixty (60) percent. This indicates that residents feel the transportation system within their neighborhood puts pedestrians and motorists in conflict. There is a general worry that cars are driving too fast and this could in turn be creating a poor pedestrian atmosphere. Traffic calming measures should be looked at to increase pedestrian safety and decrease traffic speeds.

Currently residents think that most motorists do not obey the traffic rules within the ward, but feel average about their driving experience and safety. Respondents also felt average about their experience interacting with pedestrians and bicyclists, as well as their own experience as a pedestrian or bicyclists.

The issues identified as important by the survey respondents also indicates a desire to keep the neighborhood a great place to be (detailed in **Figure 4**). They are most concerned with park maintenance and sidewalks. These two items demonstrate a desire to keep the neighborhood vibrant and resources well maintained. The concern for sidewalks reinforces the desire to foster a pedestrian friendly environment. The concerns about speed limit are reinforced noting that it is the third most important element. Additionally Traffic flow and stop sign location indicate a concern for the way traffic moves through their neighborhood. Finally, the concern for bike lanes indicates a positive attitude toward active modes of transportation. Residents want to experience their neighborhood at the pedestrian scale and want to be out of their cars and interacting with people.

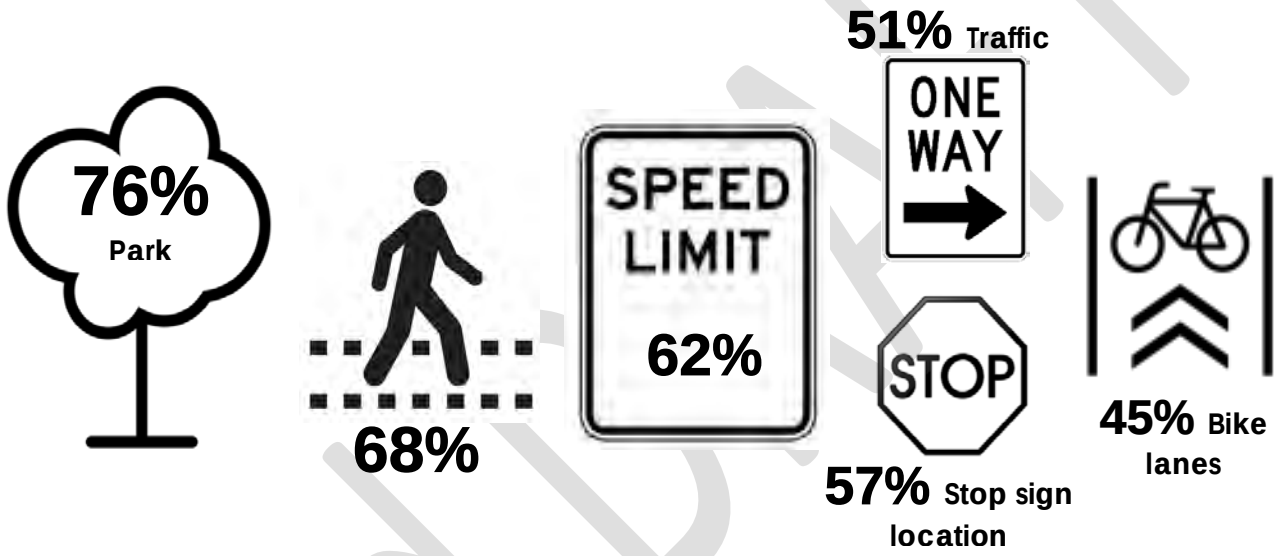


Figure 4: Survey Respondents Reported Issues by Importance

Preferred Traffic Calming Measures

Survey results show the majority of residents are not interested in any of the 8 traffic calming measures listed in the survey (speed humps, roundabouts, chokers, dividers, bump-outs, speed tables, stop signs and one-way direction change). However, given the public meeting voting, the top three measures were speed tables, dividers and roundabouts.

Concern by Intersection

Residents are most concerned about speeding, pedestrian safety, dangerous intersection, and cut-thru traffic. Key areas from the survey were identified as they were found problematic by a large number of those responding. Specific intersections of concern are listed below and shown in **Figure 5**.

- Speeding and/or Cut-thru Traffic
  - Gustine
  - Hartford
  - Juniata
  - Arsenal
  - Roger
  - Utah
- Pedestrian
  - Arsenal crossings to the park
  - Morganford and Arsenal
  - Grand & Humphrey
  - Grand crossing to Schnucks
- Intersection Safety
  - Grand and Utah
  - Grand and Arsenal
  - Grand and Hartford
  - Spring and Arsenal
  - Gustine and Arsenal
  - Hartford and Morganford
  - Morganford and Wyoming
  - Gustine and Juniata

First Public Meeting

In conjunction with Alderwoman Megan Green, the project team planned and attended a neighborhood meeting for Ward 15 residents to discuss the traffic study efforts within the neighborhood. The process of planning for the meeting, as well as a summary of the meeting and information presented at the meeting is below.

Meeting Preparation

Alderwoman Green worked with the project team to select a date and location (Monday October 5, Carpenter Branch Library) for the Ward 15 public meeting. Prior to the meeting CBB developed an online survey for residents to take as a part of the study efforts. Alderwoman Green, with other neighborhood representatives distributed door hangers throughout the neighborhood with the public meeting information, as well as the survey link. Current traffic complaints that were already submitted prior to the study, were distributed to CBB for meeting preparation and survey finalization. CBB developed a presentation to review the study process, as well as activities for participants placed around the room, and developed comment cards to be filled out on site.

Public Meeting, October 5, 2015

The meeting started with a presentation about the project for Ward 15. The ultimate goal of the study was shared: to prepare a neighborhood level street access and circulation plan aimed at enhancing traffic and pedestrian safety. The process was highlighted by outlining the four steps of the study process: (1) Stakeholder outreach, (2) Field Data, (3) Evaluate Conditions & Develop Recommendations, and (4) Summarize Recommendations and Prepare Documentation. The presentation concluded with next stopes for the study, as well as how residents can be active participants of the process. Survey information was given out and questions were answered and concerns were discussed. Following the presentation portion of the evening, residents participated in some exercises to get input on neighborhood concerns. The activities are documented below.

- **Aerial Maps –** The project team laid out five aerial maps of Ward 15, an example is shown in **Figure 6**. Post it notes, sharpies, stickers and other materials were provided for residents to note specific concerns or ideas. Attendees were able to notate specific intersections or corridors where they had concerns, as well as put notes about any ideas they had for various areas of the neighborhoods. Comments on the maps were documented as part of the public feedback.

Figure 6: Aerial Map Exercise Example

- **Dot Exercise –** Two boards, each presenting five different traffic calming techniques (10 total), were posted; one of these boards is shown in **Figure 7**. When residents entered the meeting they were given three blue dots. With these dots, residents were asked to indicate the traffic calming measures they would be most interested in seeing within their neighborhood. They could put all dots on one technique they really liked, or they could choose to not place any dots on the board. The ten techniques listed on the boards (and included on the survey) were: speed humps, roundabouts, chokers, dividers, stop signs, bump-outs, speed tables, one-way direction change, and an option indicating no interest in any of the measures. The project team compiled this information in a spreadsheet. Some post it notes were placed on the board with alternate ideas that were noted as well.

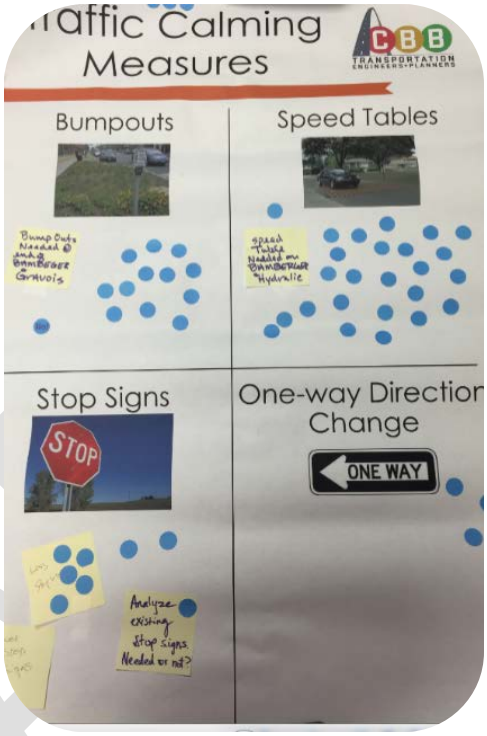


Figure 7: Dot Exercise

- **Vision for Tower Grove South –** This exercise was included because a transportation system can greatly affect how a community grows. In addition to specific traffic concerns residents have for Ward 15, the project team wanted to understand more about the quality of life within the community and what residents feel is important to them. The question was posed to the participants on a feedback board where attendees were encouraged to write or post their thoughts, as shown in **Figure 8**. This information was documented with the public meeting feedback. This information was documented with the public meeting feedback.

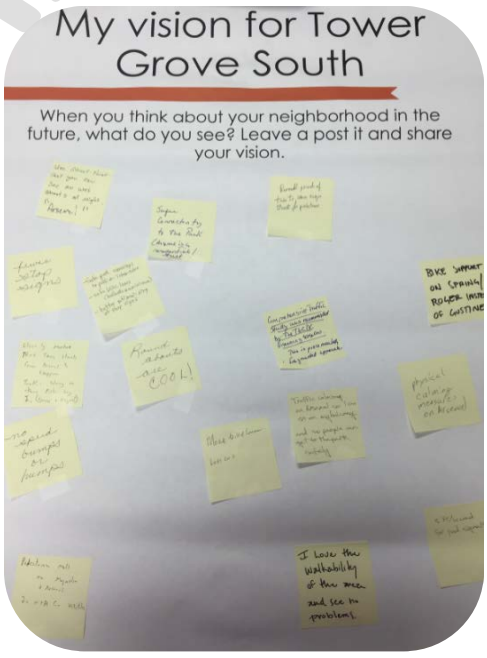


Figure 8: Vision Exercise

- **Comment Cards and Surveys –** Residents were encouraged to fil out hard copy comment cards and surveys at the public meeting. The surveys were entered online and the comments from the comment cards were compiled with the public meeting feedback.

All the information obtained at the public meeting was documented in a memorandum to City staff and Alderwoman Green. The full summary is attached as **Appendix D**. Information was used in conjunction with survey information to focus data collection efforts. **Appendix E** contains the data collection plan that was used.

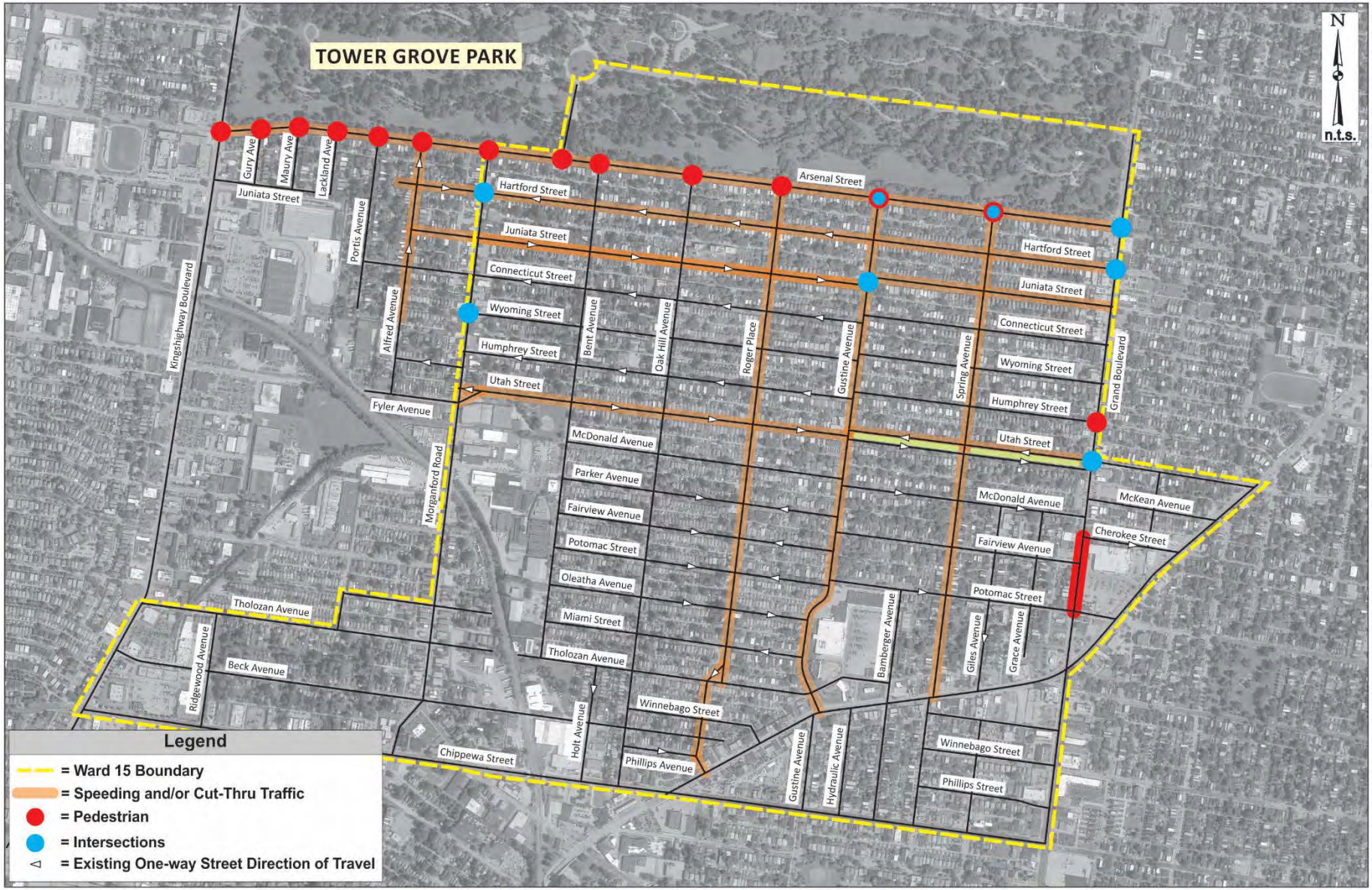


Figure 5: Resident Concerns

Second Public Meeting

In conjunction with Alderwoman Megan Green, CBB planned and attended a second neighborhood meeting for Ward 15 residents to present the results of the data collection and existing conditions investigation, and then to use that information as a basis to present and discuss the proposed recommendations for the Ward. The process of planning for the meeting, as well as a summary of the meeting and information presented at the meeting is below.

Meeting Preparation

Alderwoman Green worked with CBB to select a date and location for the second Ward 15 public meeting. Alderwoman Green worked with other neighborhood representatives to advertise the meeting via social media.

Public Meeting, 2016

The meeting started with a presentation of the data that was collected and an explanation of its significance, with time for questions from the participants. Then, building on the existing conditions, CBB presented various alternatives for the corridor (linking back to the feedback gathered from residents during the First Public Meeting) and the selected recommendations.

Study Corridor Descriptions

As shown in **Figure 5** (page 15), there are a number of streets within the neighborhood of concern for the residents. Most of these corridors were specifically investigated during the Ward 15 study.

Arsenal Street

Arsenal Street is classified by the East-West Gateway Council of Governments (EWGCOG) as a minor arterial. Arsenal is situated in an east-west orientation at the northern part of Ward 15 and is approximately 52-feet wide throughout the study area. The posted speed limit is 25MPH. The cross-section and character on Arsenal Street is important to note as the roadway separates the neighborhood from Tower Grove Park; in fact, the land use abutting Arsenal is nearly all residential on its south side, with some commercial development located at its intersections with Morganford Road and Grand and Kingshighway Boulevards and a church east of Spring. Between Kingshighway and Grand Boulevards, there are two driving lanes on Arsenal, as well as two separated bike lanes and on-street parking on both sides of the street. There are turn-lanes between Morganford Road and Center Cross Drive, and approaching Spring Avenue, Kingshighway, and Grand. Arsenal at Grand is the northern boundary of the previous South Grand Great Streets project, recently named and APA 2015 Great Places Designation. Currently, marked pedestrian crossings of Arsenal between the neighborhood and Tower Grove Park are limited. Arsenal Street serves to move vehicular and bicycle traffic along the park boundary, but can be an impediment for pedestrians trying to access Tower Grove Park.
Daily traffic volumes on Arsenal range from roughly 10,500 vehicles/day west of Grand Boulevard to 21,200 vehicles/day east of Morganford.

Arsenal is identified as a bicycle route in the Gateway Bike Plan and has separated bike lanes running the distance from Kingshighway to Grand within the boundaries for Ward 15. Arsenal outside of the ward is marked with shared lane markings.

MetroBus Route #30 (Soulard) serves Arsenal Street within Ward 15, on the southern border of Tower Grove Park. Bus #30 serves a strong market for those travelling within the boundaries of St. Louis City, linking residents to neighborhoods, jobs and services in both North and South City, as well as providing a direct connection to Downtown St. Louis. The route also provides connections to MetroLink Stations and MetroBus Transit Centers.

Hartford Street

Hartford Street is classified as a local road, and is located parallel to and just one block south of Arsenal Street. West of Grand Boulevard, there are no marked crosswalks or longitudinal roadway striping and the posted speed limit is 25MPH. On-street parking is permitted on both sides of the street throughout its length. Hartford Street changes width at Gustine Avenue: it is approximately 36-feet wide to the east and 30-feet wide to the west of that cross-street. Parking is permitted along the curbs throughout its length, with one lane of travel for each permitted

direction. The land use abutting Hartford is nearly all residential with some commercial development located at its intersection with Morganford Road. The direction of traffic flow changes multiple times on Hartford Street. At Grand Boulevard, it is a two-way street, becoming westbound-only west of Gustine Avenue and changing again to eastbound-only west of Morganford Road. There is neighborhood concern about this being a cut-thru street due to left-turns being prohibited from northbound Grand Boulevard to Arsenal Street, but allowed at Hartford Street (one block south of Arsenal). Daily traffic volumes on Hartford are approximately 500 vehicles/day.

Juniata Street

Juniata Street is also classified as a local road, and runs east-west, parallel to Hartford Street (one block north) and Arsenal Street (two blocks north). There is no longitudinal roadway striping and marked crosswalks only at the intersection with Oak Hill Avenue and Grand Boulevard. The posted speed limit is 25MPH. Juniata Street is 36-feet wide east of Gustine Avenue and 30-feet wide to its west. Parking is permitted along the curbs throughout its length, with one lane of travel for each permitted direction. The flow of traffic changes direction several times along its length. Juniata Street is a two-way between Grand Boulevard and Gustine Avenue. West of Gustine, the street is eastbound-only until it crosses Morganford, where it reverts back to two-directions. In addition, the two Juniata approaches are offset by 80 feet (as shown in **Figure 9**) at Gustine, so all traffic must turn. Many residents have concerns about the offset stop signs and the existing traffic behavior at that location. The land use abutting Juniata is nearly all residential with some commercial at the major intersections and an elementary school (Mann, St. Louis Public Schools) east of Oak Hill Avenue. Daily traffic volumes on Juniata are roughly 750 vehicles/day.

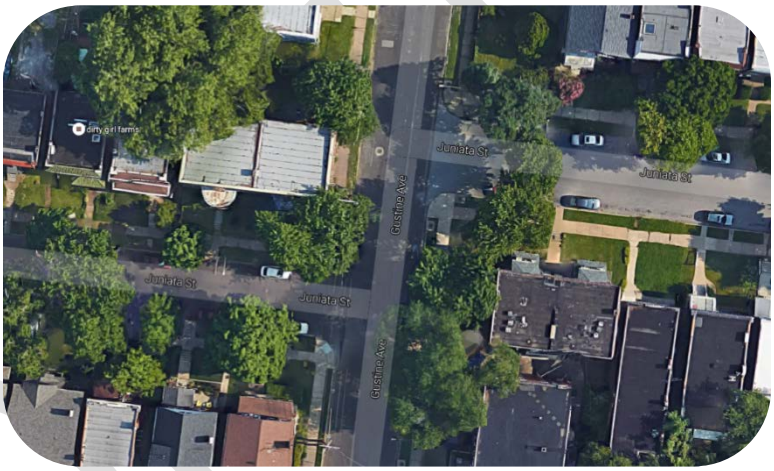


Figure 9: Juniata Street and Gustine Avenue Intersection

Utah Street

Utah Street is also classified as a local road. The street runs east-west parallel to, but south of, the previous roads described. Utah Street has painted crosswalks at Gustine Avenue, but no longitudinal striping, and the posted speed limit is 25MPH. Between Grand and Gustine, the street has a boulevard feel, with a 50-foot wide center (landscaped) median and a 30-foot wide roadway for each direction of travel (accommodating a single driving lane and parking). Between Gustine and Bent Avenue, Utah is eastbound-only and is 30-feet wide (accommodating one lane of traffic and parking along both curbs). Between Bent and Morganford Road, the street accommodates two-way traffic with a 38-foot minimum width (two travel lanes and parking along both curbs). The land use abutting Utah is nearly all residential

with a City Park (McDonald) west of Bent Avenue and some light-industrial parcels east of Morganford Road.

Morganford Road

Morganford Road is classified as a major collector by EWGCOG. It is a two-way street, running north-south through the neighborhood, parallel to Kingshighway and Grand Boulevards. The roadway is 44-feet wide, accommodating one lane of traffic and one (curbside) parking lane in each direction. The road has both longitudinal striping (a centerline and lane lines) and marked crosswalks at most of its intersections in the study area, although they are a mix of standard, continental, and decorative. The posted speed limit is 30MPH and there is a radar speed limit sign posted for southbound traffic south of Hartford Street. One of its cross-streets (Hartford Street) is one-way approaching Morganford Road from both directions (i.e. there are no turns permitted to the street) and Juniata and Connecticut Streets both change from a one-way street east of Morganford to a two-way street to its west. Further south, the approaches of westbound-only Humphrey Street are offset by 145-feet at Morganford. The land uses fronting Morganford are predominantly commercial, with some business and residential. Morganford Road is a popular destination for travelers from within, as well as visitors to the neighborhood. The pedestrian facilities (crosswalks and signals) at Arsenal Street make Morganford a popular access point for Tower Grove Park. Daily traffic volumes on Morganford are approximately 6,000 vehicles/day near Arsenal Street.

MetroBus Route #8 ('Bates-Morganford' on Morganford) serves this corridor within Ward 15. Both of these routes connect to Transit Centers as well as MetroLink stops. The #8 bus serves many South St. Louis City neighborhoods and connects local businesses and job centers. The route connects riders with locations to transfer to MetroLink, as well as MetroBus routes that serve wider areas of the City, and St. Louis County.

Morganford is identified in the Bike Saint Louis network as a shared lane path, and is marked with sharrows and posted with 'Share the Road' signage.

Roger Place

Roger Place is also a two-way, north-south street through the neighborhood (three blocks east of Morganford Road), but is classified as a local road. The roadway is 36-feet wide, accommodating one lane of traffic and one (curbside) parking lane in each direction. The posted speed limit is 25MPH and there is no longitudinal roadway striping or marked crosswalks. Some of the cross-streets at the south end of the study area are one-way approaching Roger Place from both directions (Potomac Street, Fairview Avenue, Parker Avenue) and some of the cross-streets at the north end of the study area are one-way at Roger Place (Hartford Street, Juniata Street, Connecticut Street, Humphrey Street, Utah Street). The land use along Roger Place is nearly all residential with only a few commercial parcels located at intersections. Daily traffic volumes on Roger Place are approximately 1,950 vehicles/day.

Gustine Avenue

Gustine Avenue is classified as a major collector by EWCOG. This two-way street runs north-south through the neighborhood, but you cannot turn left onto Gustine from Gravois Avenue. The roadway is 34-feet wide (30-feet wide south of Utah Street), accommodating one lane of traffic and one (curbside) parking lane in each direction. There is a posted speed limit of 25MPH, and minimal longitudinal striping or marked crosswalks, although there are decorative crosswalks at its intersection with Utah Street. All of Gustine Avenue's cross-streets change from one-way to two-way at their intersections (except for Wyoming Street). In addition, several of Gustine's cross-streets have offset approaches: Juniata Street (roughly 80-feet), Connecticut Street (roughly 70-feet), Wyoming Street (65-feet), Humphrey Street (55-feet), McDonald Avenue (45-feet), and Fairview Avenue (150-feet), and Potomac Street (35-feet). There are very few parcels that front Gustine Avenue, and the adjacent land uses are almost all residential. Daily traffic volumes on Gustine are roughly 4,000 vehicles/day.

Gustine Avenue is identified in the Bike Saint Louis network as a shared lane path, and is marked with sharrows and posted with 'Share the Road' signage.

Spring Avenue

Spring Avenue is classified as a local road and is a two-way, north-south street. The roadway is approximately 36-feet wide, accommodating one lane of traffic and one (curbside) parking lane in each direction. The posted speed limit is 30MPH. The road has a marked centerline stripe and minimal marked crosswalks (Arsenal and McDonald). At the intersection with Arsenal Street, there is a traffic signal with pedestrian signal heads and marked crosswalks across all approaches of the intersection. During the First Public Meeting for this project, participants indicated their feeling that the signal would be more appropriate at the adjacent Gustine Avenue intersection. The neighboring land uses are predominantly residential and do not face Spring Avenue at the north end of the corridor (but do so south of McDonald Avenue). Spring is two way throughout the neighborhood. Daily traffic volumes on Spring Avenue are roughly 2,000 vehicles/day.

Grand Boulevard

Grand Boulevard is classified as a principal arterial within the study area. Grand intersects two minor arterials (Arsenal and Chippewa Streets) and one principal arterial (Gravois Avenue) within the Ward 15 boundaries. Grand Boulevard is a two-way, north-south corridor with mixed land uses (commercial, business and residential). The posted speed limit is 25MPH. Daily traffic volumes on Grand Boulevard are roughly 13,300 vehicles/day near Arsenal Street.

South Grand Boulevard recently participated in an East-West Gateway Great Streets corridor project involving an extensive master planning process and the design and implementation of a new streetscape. South Grand Boulevard was recently selected by the Missouri Chapter of the America Planning Association as 'Great Place – Great Street'. As part of the project, a road diet was implemented on this corridor south of Arsenal Street. Between Arsenal and McDonald Avenue, Grand Boulevard is now approximately 50-feet wide with one driving lane in each

direction, with a center turn lane and on-street, metered parking. In addition, there are curb bump-outs and marked pedestrian crossings at every intersection between Arsenal Street and Utah Street. South of McDonald, Grand Boulevard is approximately 56-feet wide with two driving lanes in each direction with a center turn lane, and on-street parking; there are no marked pedestrian crossings at the intersections between McDonald and Gravois Avenues.

The #70 Grand MetroBus travels this corridor. It is the most heavily used route in the St. Louis region, connecting area residents to regional employment, attractions and opportunities, including connections to MetroLink stations and MetroBus Transit Centers.

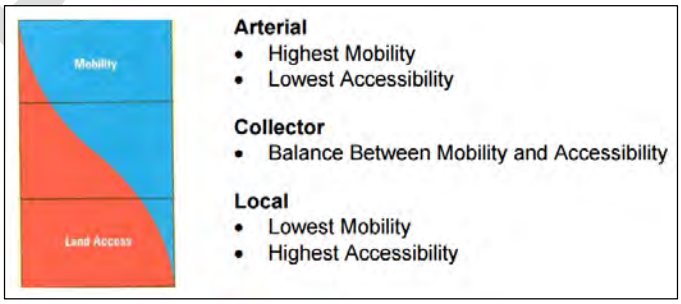
Grand Boulevard is identified in the Gateway Bike Plan as a shared-lane facility south of Arsenal Street, although there are no lane markings there is Bike St. Louis signage. North of Arsenal Street there are dedicated bike lanes.

Roadway Functional Classification

When evaluating roadway operations, it is important to consider how the facility works (or is intended to work) within the surrounding street network. The "hierarchy" of roadways and their usage is described by their "functional classification".

The purpose of roadway functional classification is to formally describe how travel is channelized through our roadway network and to determine project eligibility for federal funds. Roadways are classified according to their urban or rural setting and the type of service they provide based on considerations such as: connectivity, mobility, accessibility, vehicle miles traveled, average annual daily traffic, and abutting land use. In the St. Louis region, the East-West Gateway Council of Governments is responsible for maintaining and updating the region's Roadway Functional Classification System mandated under federal law.

For nomenclature purposes, those roadways that provide a high level of mobility are called "arterials"; those that provide a high level of accessibility are called "locals"; and those that provide a more balanced blend of mobility and access are called "collectors". Context sensitivity and livability form the environment through which mobility and access should be considered. For this reason, arterials typically are roadways with high traffic volumes and are frequently the route of choice for intercity buses and trucks.



Relationship Between Mobility and Accessibility (Functional Classification Procedure Manual, East West Gateway Coordinating Council, 2007)

Minor arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher ("major") arterial counterparts and offer connectivity to the higher arterial system (major arterials, expressways, freeways, interstates). In an urban context, they interconnect and augment the higher arterial system, provide intra-community continuity and may carry local bus routes. The general range for daily traffic volumes on a minor arterial is 3,000-14,000 vehicles per day (vpd).

As their name implies, collectors "collect" traffic from local roads and connect traffic to arterial roadways. Collector routes are typically shorter than Arterial routes but longer than local roads. Collectors often provide traffic circulation within residential neighborhoods as well as commercial, industrial or civic districts. The general range for daily traffic volumes on a major collector is 1,100 – 6,300 vpd. Minor (or "residential") collectors are characterized by on-street parking, direct access to residential driveways and average daily volumes typically less than 5,000 vpd. If total daily traffic increases to more than 5,000 vpd, the character of the road may shift to that of a major (or "system") collector roadway. In general, a system collector has fewer curb cuts and restrictions for on-street parking to encourage better traffic flow.

Locally classified roads account for the largest percentage of all roadways in terms of mileage. They are not intended for use in long distance travel, except at the origin or destination end of the trip, due to their provision of direct access to abutting land. Bus routes generally do not run on local roads. They are often designed to discourage through traffic. As public roads, they should be accessible for public use throughout the year. The general range of daily traffic volumes on a local road is less than 1,000 vpd.

Traffic Data Collection

The project team collected traffic volume, speed, and origin-destination data at selected locations during the peak periods in order to identify the prevailing traffic and pedestrian conditions and behaviors. Count types and locations were determined based on input from the residents during the First Public Meeting and the Resident Survey. Several types of count data were collected:

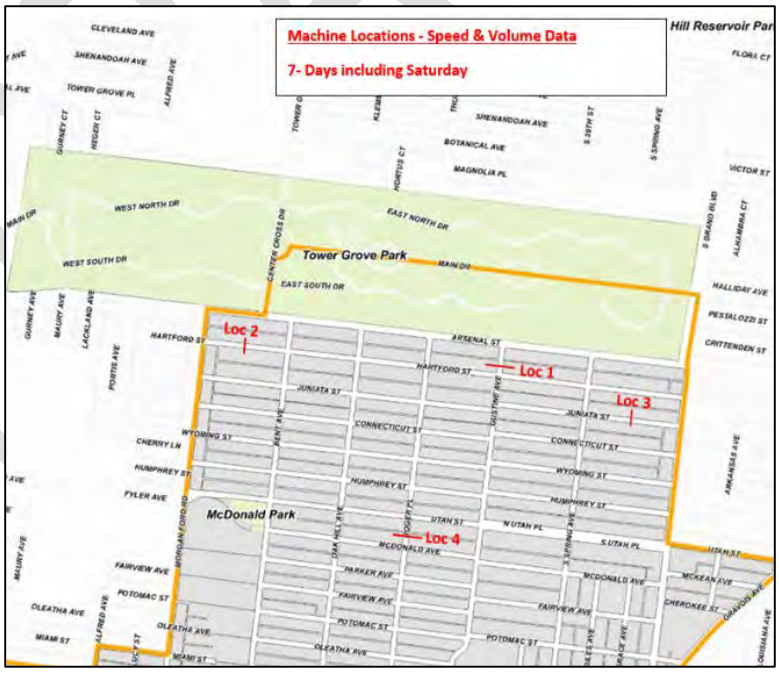


Figure 10: Automated Count Locations

- Automatic machine traffic counters were placed at four different locations, shown in **Figure 10,** for seven days. These counters measured both through traffic volumes (to be summarized both hourly and daily or "ADT") and travel speeds. This data is summarized in **Figure 13**. The machine counters ("tubes") were placed at the following locations:
    - Gustine Avenue south of Arsenal Street
    - Hartford Street east of Morganford Road
    - Juniata Street west of Grand Boulevard
    - Roger Place south of Utah Street

- Manual vehicular and pedestrian traffic counts were collected at four intersections, shown in **Figure 11**. Vehicular turning movement, pedestrian, and bicycle volumes were all counted for 6.5 peak hours of a typical weekday and 3 peak hours on Saturday. The count periods were 2.5 hours in the weekday morning peak: 7:00 am – 9:30 am and 4 hours in the weekday afternoon peak: 2:00 pm – 6:00 PM. Saturday count hours were 12:00 noon – 3:00 pm. The afternoon count period was extended to capture any potential peaks associated with school times. The intersections counted were:

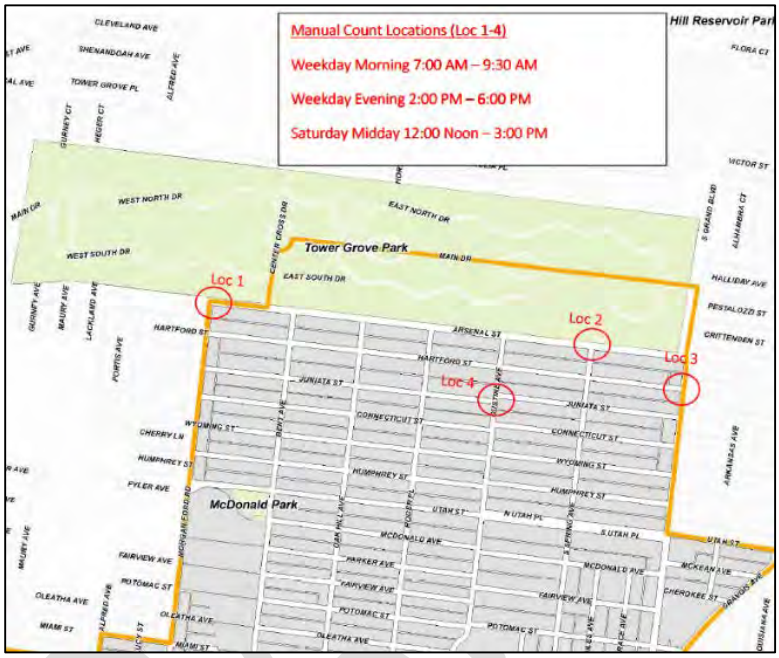


Figure 11: Manual Count Locations

  - Arsenal Street at Morganford Road (signalized intersection)
  - Arsenal Street at Spring Avenue (signalized intersection)
  - Grand Boulevard at Hartford Street (signalized intersection)
  - Gustine Avenue at Juniata Street (offset, all-way stop-controlled)

The manual data was analyzed to identify the peak hour volume for the AM, Afternoon, and PM periods. The Afternoon period captures the typical school dismissal volumes. The automobile traffic volumes for these peak hours is summarized in **Figure 14**, the pedestrian and bicycle traffic volumes are summarized in **Figure 15**.

- In order to investigate the resident concern of "cut-thru" traffic, origin-destination data was collected for vehicles traveling selected streets of concern. The time of passage and last 3 numbers of the license plate were recorded for each vehicle passing through each O-D station shown in **Figure 12**. The observations were made during the same peak period hours that the manual traffic counts were collected: 6.5 peak hours of a typical weekday and 3 peak hours on Saturday. The count periods were 2.5 hours in the weekday morning peak: 7:00 am – 9:30 am and 4 hours in the weekday afternoon peak: 2:00 pm – 6:00 PM. Saturday count hours were 12:00 noon – 3:00 pm. The O-D stations were located at the following locations:
    - Gustine Avenue south of Arsenal Street
    - Gustine Avenue north of McDonald Avenue
    - Juniata Street west of Grand Boulevard
    - Juniata Street east of Morganford Road
    - Hartford Street west of Grand Boulevard
    - Hartford Street east of Morganford Road

Figure 12: Origin-Destination Study Stations

The data was analyzed to identify the vehicles that passed through O-D stations at both "ends" of a study route to estimate the prevalence of "cut-thru" traffic. The results of the evaluation are presented later in this section.

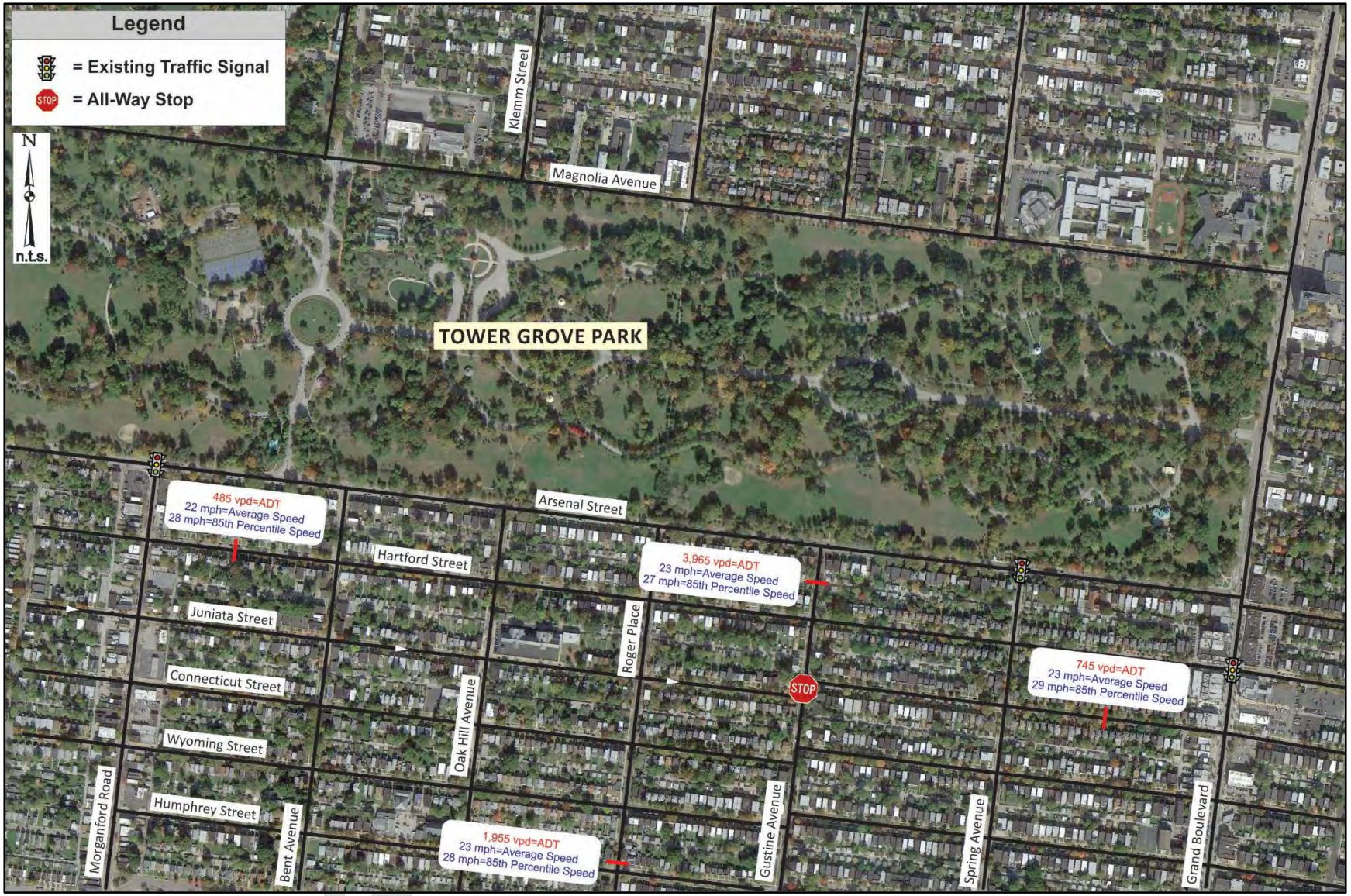


Figure 13: Average Daily Traffic (ADT) and Speed Data

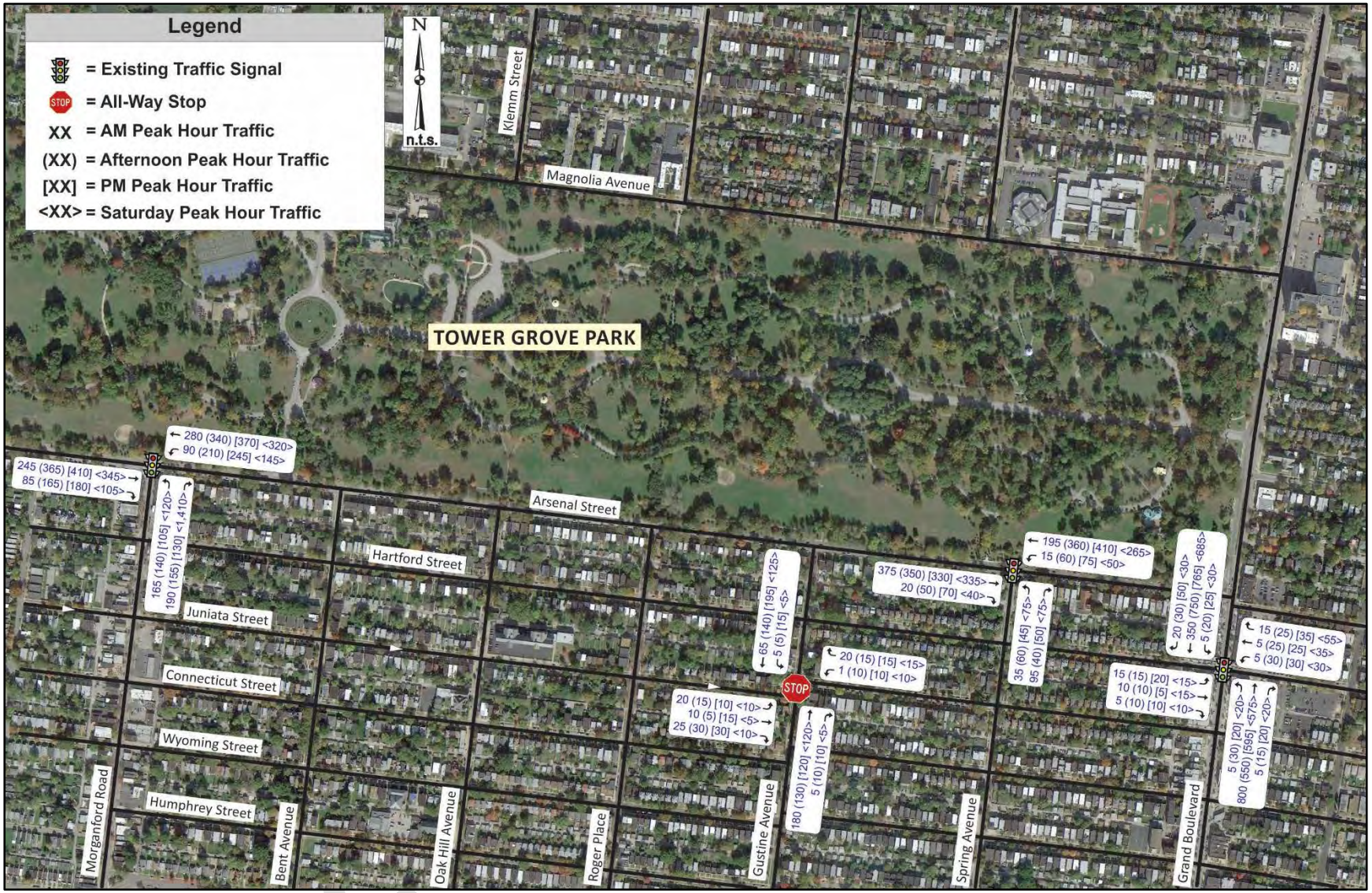


Figure 14: Peak Hour Vehicular Volume Data

Figure 15: Peak Hour Pedestrian Volume Data

Traffic Volumes and Speeds

The machine speed and count data was used to compute daily traffic volumes and the prevailing speeds for segments of roadway in Ward 15 (shown in **Figure 13**). This data was then evaluated by comparing actual traffic conditions to the street's intended purpose, current posted speed limit and general character. **Tables 1-4** identify the average daily traffic volume (ADT), 85th percentile travel speed, 50th percentile travel speed, and the percentage of vehicles exceeding a 30 mph travel speed.

Traffic engineering experience maintains that most drivers will travel at an operating speed that they consider both comfortable and safe based upon street geometrics and surrounding conditions. The 85th percentile speed, at or below which 85% of the traffic will voluntarily travel in free-flow traffic conditions, is one of the primary factors used in engineering studies to determine appropriate speed limits.

Gustine Avenue

Table 1 identifies the ADT, 85th percentile travel speed, 50th percentile travel speed, and percent of vehicles exceeding 30 mph near the 3100 Block of Gustine Avenue. The average weekday traffic volumes along Gustine Avenue was 3,965 vpd with lower volumes on the weekends. These volumes are consistent with the collector roadway classification. The average speed was 23 mph, the 85th percentile speed was 27 mph with a posted speed limit of 25 mph. Overall, less than 5% of vehicles exceeded 30 mph.

Table 1 - Existing Traffic Volume and Speed Data for Gustine Avenue

Roadway Segment	Average Weekday Daily Traffic	85th Percentile Travel Speed (mph)	50th Percentile Travel Speed (mph)	% Vehicles Exceeding 30 mph
3100 Block of Gustine (N. of Hartford)	3,965 vpd	27	23	5%
Northbound	1,905 vpd	27	23	3%
Southbound	2,060 vpd	27	23	8%

Hartford Street

Table 2 identifies the ADT, 85th percentile travel speed, 50th percentile travel speed, and percent of vehicles exceeding 30 mph near the 4200 Block of Hartford Street. The average weekday traffic volumes along Hartford Street was 515 vpd with similar to slightly lower volumes on the weekends. The average speed was 22 mph, the 85th percentile speed was 28 mph with a posted speed limit of 25 mph. Overall, less than 8% of vehicles exceeded 30 mph.

Table 2 - Existing Traffic Volume and Speed Data for Hartford Street

Roadway Segment	Average Weekday Daily Traffic	85th Percentile Travel Speed (mph)	50th Percentile Travel Speed (mph)	% Vehicles Exceeding 30 mph
4200 Block of Hartford (E of MorganFord)				
Westbound	485 vpd	28	22	8%

Juniata Street

Table 3 identifies the ADT, 85th percentile travel speed, 50th percentile travel speed, and percent of vehicles exceeding 30 mph near the 3600 Block of Juniata Street. The average weekday traffic volumes along Juniata Street was 745 vpd. The machine counter had a malfunction and only one day of data were gathered for both directions. As a result, the 50th and 85th percentile speeds are only based on one day of data and may be considered less inaccurate. The average speed was 23 mph, the 85th percentile speed was 29 mph. There was no posted speed limit on Juniata Street, but the limit is assumed to be 25 mph to match the surrounding streets. Overall, less than 14% of the vehicles recorded exceeded 30 mph.

Table 3 - Existing Traffic Volume and Speed Data for Juniata Street

Roadway Segment	Average Weekday Daily Traffic	85th Percentile Travel Speed (mph)	50th Percentile Travel Speed (mph)	% Vehicles Exceeding 30 mph
3600 Block of Juniata (W of Grand)*	745 vpd	29	23	14%
Eastbound	365 vpd	29	23	4%
Westbound	380 vpd	29	23	25%

* Machine malfunction (1 weekday of data)

Rodger Place

Table 4 identifies the ADT, 85th percentile travel speed, 50th percentile travel speed, and percent of vehicles exceeding 30 mph near the 3300 Block of Rodger Place. The average weekday traffic volumes along Rodger Place was 1,955 vpd. It should be noted that some of the directional information may be skewed based on the prevalence of on-street parking forcing vehicles to drive more in the middle of the road. The machine counter had a malfunction and only two days of data were gathered for southbound. As a result, the 50th and 85th percentile speeds were inaccurate. However, less than 3% of the vehicles recorded exceeded 30 mph.

Table 4 - Existing Traffic Volume and Speed Data for Rodger Place

Roadway Segment	Average Weekday Daily Traffic	85th Percentile Travel Speed (mph)	50th Percentile Travel Speed (mph)	% Vehicles Exceeding 30 mph
3300 Block of Rodger Place (N of McDonald)*	1,955 vpd	28	23	3%
Northbound	1,370 vpd	28	23	3%
Southbound*	585 vpd	27	22	2%

* Machine malfunction (2 weekdays of data)

Origin Destination Data

Gustine Avenue, Hartford Street and Juniata Street were identified in the stakeholder engagement process as having the most prevalent cut-through traffic concerns. Residents believe that motorists use these routes to avoid congestion on Grand or Kingshighway Boulevards and/or Arsenal Street. It was also noted that northbound Grand Boulevard traffic cannot turn left to Arsenal Street, and drivers may be utilizing Hartford Street (or others further south) as a substitute.

A license plate survey was conducted to quantify the volume of cut-through traffic on Gustine Avenue, Hartford Street and Juniata Street Avenue (as opposed to trips that begin or end within the segment). Data was collected during the weekday morning period (7:00-9:30 AM) and weekday afternoon/evening period (2:00 to 6:00 PM) as well as a midday Saturday (12:00 to 3:00 PM). License plate data was collected at the following locations:

- Gustine Avenue, just south of Arsenal Street and north of McDonald Avenue;
- Hartford Street, west of Grand Boulevard and east of Morganford Road; and
- Juniata Street, west of Grand Boulevard and east of Morganford Road.

After the data was collected, the two locations on each street were compared to determine how many vehicles passed through both stations on opposite ends of the study area – indicating a volume of cut-through traffic. The data is summarized in **Tables 5 – 10**, on the following pages.

The data indicated that Gustine Avenue (Tables 5-6) has the highest volume of traffic passing between McDonald Avenue and Arsenal Street. Approximately 40-percent of the northbound traffic and over 50% of the southbound traffic continue through the corridor past the downstream station during weekday peak periods. During the midday Saturday peak, the through-volume was roughly 40-percent.

On Hartford and Juniata Streets, the percentage of traffic traveling between Grand Boulevard and Morganford Road is much lower. During weekday peak periods, the volume of vehicles passing both stations was 6-percent or less. During the weekend peak period, the volume was slightly higher at up to 7-percent. Hartford Street had slightly higher volumes of traffic passing through both stations.

Juniata Street

Table 5 summarized the number and percentage of vehicles observed at both locations during the weekday along Juniata Street. **Table 6** summarized the number and percentage of vehicles observed at both locations during the midday Saturday.

Table 5 – Origin-Destination Results for Juniata Street, Weekday Traffic

	EASTBOUND DIRECTION - EAST STATION				EASTBOUND DIRECTION - WEST STATION		
Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations	Time	Total # of Vehicles	# Observed at Both Stations	# Observed at Both Stations
7:00 - 7:30 AM	18	1	6%	7:00 - 7:30 AM	11	1	9%
7:30 - 8:00 AM	17	0	0%	7:30 - 8:00 AM	15	0	0%
8:00 - 8:30 AM	22	0	0%	8:00 - 8:30 AM	15	0	0%
8:30 - 9:00 AM	21	1	5%	8:30 - 9:00 AM	13	1	8%
9:00 - 9:30 AM	7	0	0%	9:00 - 9:30 AM	13	0	0%
	85	2	2%		67	2	3%
2:00 - 2:30 PM	14	1	7%	2:00 - 2:30 PM	29	1	3%
2:30 - 3:00 PM	19	1	5%	2:30 - 3:00 PM	31	1	3%
3:00 - 3:30 PM	13	0	0%	3:00 - 3:30 PM	33	0	0%
3:30 - 4:00 PM	11	2	18%	3:30 - 4:00 PM	43	2	5%
4:00 - 4:30 PM	11	0	0%	4:00 - 4:30 PM	38	0	0%
4:30 - 5:00 PM	11	1	9%	4:30 - 5:00 PM	33	1	3%
5:00 - 5:30 PM	16	0	0%	5:00 - 5:30 PM	44	0	0%
5:30 - 6:00 PM	18	0	0%	5:30 - 6:00 PM	37	0	0%
	113	5	4%		288	5	2%

Table 6 – Origin-Destination Results for Juniata Street, Weekday Traffic

	EASTBOUND DIRECTION - EAST STATION				EASTBOUND DIRECTION - WEST STATION		
Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations	Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations
12:00 - 12:30 PM	28	3	11%	12:00 - 12:30 PM	40	3	8%
12:30 - 1:00 PM	21	1	5%	12:30 - 1:00 PM	29	1	3%
1:00 - 1:30 PM	15	0	0%	1:00 - 1:30 PM	28	0	0%
1:30 - 2:00 PM	15	1	7%	1:30 - 2:00 PM	36	1	3%
2:00 - 2:30 PM	23	3	13%	2:00 - 2:30 PM	21	3	14%
2:30 - 3:00 PM	11	1	9%	2:30 - 3:00 PM	27	1	4%
	113	9	8%		181	9	5%

Table 7 summarized the number and percentage of vehicles observed at both locations during the weekday along Hartford Street. **Table 8** summarized the number and percentage of vehicles observed at both locations during the midday Saturday.

Table 7 – Origin-Destination Results for Hartford Street, Weekday Traffic

	WESTBOUND DIRECTION - EAST STATION				WESTBOUND DIRECTION - WEST STATION		
Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations	Time	Total # of Vehicles	# Observed at Both Stations	# Observed at Both Stations
7:00 - 7:30 AM	10	1	10%	7:00 - 7:30 AM	25	1	4%
7:30 - 8:00 AM	14	0	0%	7:30 - 8:00 AM	25	0	0%
8:00 - 8:30 AM	22	2	9%	8:00 - 8:30 AM	22	2	9%
8:30 - 9:00 AM	23	1	4%	8:30 - 9:00 AM	29	1	3%
9:00 - 9:30 AM	16	1	6%	9:00 - 9:30 AM	8	1	13%
	85	5	6%		109	5	5%
2:00 - 2:30 PM	28	1	4%	2:00 - 2:30 PM	14	1	7%
2:30 - 3:00 PM	29	0	0%	2:30 - 3:00 PM	9	0	0%
3:00 - 3:30 PM	23	1	4%	3:00 - 3:30 PM	18	0	0%
3:30 - 4:00 PM	37	2	5%	3:30 - 4:00 PM	20	2	10%
4:00 - 4:30 PM	30	0	0%	4:00 - 4:30 PM	14	1	7%
4:30 - 5:00 PM	47	3	6%	4:30 - 5:00 PM	24	3	13%
5:00 - 5:30 PM	41	2	5%	5:00 - 5:30 PM	16	2	13%
5:30 - 6:00 PM	24	1	4%	5:30 - 6:00 PM	24	1	4%
	259	10	4%		139	10	7%

Table 8 – Origin-Destination Results for Hartford Street, Weekend Traffic

	WESTBOUND DIRECTION - EAST STATION				WESTBOUND DIRECTION - WEST STATION		
Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations	Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations
12:00 - 12:30 PM	32	2	6%	12:00 - 12:30 PM	24	2	8%
12:30 - 1:00 PM	28	3	11%	12:30 - 1:00 PM	25	3	12%
1:00 - 1:30 PM	27	1	4%	1:00 - 1:30 PM	8	1	13%
1:30 - 2:00 PM	28	2	7%	1:30 - 2:00 PM	17	2	12%
2:00 - 2:30 PM	24	2	8%	2:00 - 2:30 PM	19	2	11%
2:30 - 3:00 PM	30	2	7%	2:30 - 3:00 PM	16	2	13%
	169	12	7%		109	12	11%

Gustine Avenue

Table 9 summarized the number and percentage of vehicles observed at both locations during the weekday along Gustine Avenue. **Table 10** summarized the number and percentage of vehicles observed at both locations during the midday Saturday along Gustine Avenue.

Table 9 – Origin-Destination Results for Gustine Avenue, Weekday Traffic

	SOUTHBOUND DIRECTION - NORTH STATION				NORTHBOUND DIRECTION - NORTH STATION		
Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations	Time	Total # of Vehicles	# Observed at Both Stations	# Observed at Both Stations
7:00 - 7:30 AM	20	8	40%	7:00 - 7:30 AM	98	38	39%
7:30 - 8:00 AM	36	17	47%	7:30 - 8:00 AM	107	35	33%
8:00 - 8:30 AM	36	12	33%	8:00 - 8:30 AM	100	21	21%
8:30 - 9:00 AM	20	10	50%	8:30 - 9:00 AM	93	35	38%
9:00 - 9:30 AM	29	11	38%	9:00 - 9:30 AM	85	26	31%
	141	58	41%		483	155	32%
2:00 - 2:30 PM	49	24	49%	2:00 - 2:30 PM	68	28	41%
2:30 - 3:00 PM	56	28	50%	2:30 - 3:00 PM	68	29	43%
3:00 - 3:30 PM	74	33	45%	3:00 - 3:30 PM	78	33	42%
3:30 - 4:00 PM	99	46	46%	3:30 - 4:00 PM	74	30	41%
4:00 - 4:30 PM	111	43	39%	4:00 - 4:30 PM	57	33	58%
4:30 - 5:00 PM	128	53	41%	4:30 - 5:00 PM	64	20	31%
5:00 - 5:30 PM	129	40	31%	5:00 - 5:30 PM	59	18	31%
5:30 - 6:00 PM	119	38	32%	5:30 - 6:00 PM	59	25	42%
	765	305	40%		527	216	41%
	SOUTHBOUND DIRECTION - SOUTH STATION				NORTHBOUND DIRECTION - SOUTH STATION		
Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations	Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations
7:00 - 7:30 AM	28	8	29%	7:00 - 7:30 AM	57	38	67%
7:30 - 8:00 AM	35	17	49%	7:30 - 8:00 AM	47	35	74%
8:00 - 8:30 AM	40	12	30%	8:00 - 8:30 AM	44	21	48%
8:30 - 9:00 AM	37	10	27%	8:30 - 9:00 AM	61	35	57%
9:00 - 9:30 AM	32	11	34%	9:00 - 9:30 AM	40	26	65%
	172	58	34%		249	155	62%
2:00 - 2:30 PM	62	24	39%	2:00 - 2:30 PM	54	30	56%
2:30 - 3:00 PM	62	28	45%	2:30 - 3:00 PM	45	30	67%
3:00 - 3:30 PM	82	33	40%	3:00 - 3:30 PM	55	31	56%
3:30 - 4:00 PM	102	46	45%	3:30 - 4:00 PM	56	30	54%
4:00 - 4:30 PM	105	43	41%	4:00 - 4:30 PM	58	32	55%
4:30 - 5:00 PM	118	53	45%	4:30 - 5:00 PM	37	20	54%
5:00 - 5:30 PM	99	40	40%	5:00 - 5:30 PM	59	18	31%
5:30 - 6:00 PM	86	38	44%	5:30 - 6:00 PM	49	25	51%
	716	305	43%		413	216	52%

Table 10 – Origin-Destination Results for Gustine Avenue, Weekend Traffic

	SOUTHBOUND DIRECTION - NORTH STATION				NORTHBOUND DIRECTION - NORTH STATION		
Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations	Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations
12:00 - 12:30 PM	59	24	41%	12:00 - 12:30 PM	74	35	47%
12:30 - 1:00 PM	64	19	30%	12:30 - 1:00 PM	82	27	33%
1:00 - 1:30 PM	78	27	35%	1:00 - 1:30 PM	59	27	46%
1:30 - 2:00 PM	80	31	39%	1:30 - 2:00 PM	54	22	41%
2:00 - 2:30 PM	60	19	32%	2:00 - 2:30 PM	60	25	42%
2:30 - 3:00 PM	81	29	36%	2:30 - 3:00 PM	87	39	45%
	422	149	35%		416	175	42%
	SOUTHBOUND DIRECTION - SOUTH STATION				NORTHBOUND DIRECTION - SOUTH STATION		
Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations	Time	Total # of Vehicles	# Observed at Both Stations	% Observed at Both Stations
12:00 - 12:30 PM	41	24	59%	12:00 - 12:30 PM	77	35	45%
12:30 - 1:00 PM	40	19	48%	12:30 - 1:00 PM	61	27	44%
1:00 - 1:30 PM	54	27	50%	1:00 - 1:30 PM	65	27	42%
1:30 - 2:00 PM	51	31	61%	1:30 - 2:00 PM	59	22	37%
2:00 - 2:30 PM	39	19	49%	2:00 - 2:30 PM	61	25	41%
2:30 - 3:00 PM	41	29	71%	2:30 - 3:00 PM	74	39	53%
	266	149	56%		397	175	44%

Accident Data

Accident data was obtained from the City of St. Louis Traffic Division for several routes within the study area for three full years: 2012, 2013, and 2014. The data is provided by intersection and is summarized in **Tables 11 - 17**.

As would be expected, the intersections with the highest number of crashes were with Grand Boulevard and Arsenal Street – the two routes within the study network classified as arterials (therefore carrying higher volumes of traffic). Over the three-year data period, there were between seven and fifty-four accidents at the intersections on these two routes. The highest number of recorded crashes (54) was at the intersection of Grand and Arsenal. On Grand Boulevard, the next-highest total accident numbers were at Potomac Street (44) and Utah Place (27) – echoing the public input regarding areas of concern. On Arsenal Street, the next highest total was at Morganford Road, another key study intersection.

On the remaining study routes the highest number of accidents during the three-year period was at Spring Street and Utah Place (8 incidents) followed by Hartford Street and Oak Hill Avenue (7 incidents). The remaining intersections investigated had six or less accident records over the three-year study period.

In addition, a number of the intersections on both Grand Boulevard and Arsenal Street, as well as on three other streets (Gustine Avenue, Juniata Street and Morganford Road) had pedestrian-involved accidents during the three-year period, these incidences are marked with an asterisk and red text in the tables below. The pedestrian-accident locations all had 1 incident over the three-year period, with the exception of the following intersections, which each had 2 incidents: Grand/Potomac and Gustine/Tholozan.

Table 11 - Existing Accident Data for Grand Boulevard

Cross Street	2014	2013	2012	*(Total)*
Arsenal	20	19	15	*54*
Hartford	10	6*	5	*21*
Juniata	8	10	3	*21*
Connecticut	2	7	12	*21*
Wyoming	2	6	6*	*14*
Humphrey	1	3	6*	*10*
Utah	8	6	13	*27*
McDonald	7	8*	9	*24*
Fairview	4*	8	3	*15*
Potomac	16*	19*	9	*44*

***** pedestrian involved

Table 12 - Existing Accident Data for Spring Avenue

Cross Street	2014	2013	2012	*(Total)*
Arsenal	2	3	8*	*13*
Hartford	1	0	1	*2*
Juniata	1	0	0	*1*
Connecticut	1	1	4	*6*
Wyoming	2	0	1	*3*
Humphrey	1	0	1	*2*
Utah	3	3	2	*8*
McDonald	2	1	1	*4*
Fairview	1	1	1	*3*
Potomac	1	1	3	*5*

*pedestrian involved

Table 13 - Existing Accident Data for Gustine Avenue

Cross Street	2014	2013	2012	*(Total)*
Arsenal	4	1	5	*10*
Hartford	1	1	2	*4*
Juniata	2	1	2	*5*
Connecticut	0	1	0	*1*
Wyoming	1	3	0	*4*
Humphrey	0	0	3	*3*
Utah	1	1	2	*4*
McDonald	1	0	2	*3*
Parker	0	1	1*	*2*
Fairview	2	1	2	*5*
Potomac	0	0	1	*1*
Oleatha	1	0	0	*1*
Miami	1	0	1	*2*
Tholozan	1*	0	4*	*5*

*pedestrian involved

Table 14 - Existing Accident Data for Roger Place

Cross Street	2014	2013	2012	*(Total)*
Arsenal	2	1	4	*7*
Hartford	0	0	1	*1*
Juniata	0	0	0	*0*
Connecticut	0	0	2	*2*
Wyoming	0	1	0	*1*
Humphrey	1	0	0	*1*
Utah	1	0	0	*1*
McDonald	0	1	0	*1*
Parker	1	0	1	*2*
Fairview	0	1	0	*1*
Potomac	2	2	0	*4*
Oleatha	0	2	1	*3*
Miami	1	0	0	*1*
Tholozan	1	1	0	*2*

Table 15 - Existing Accident Data for Morganford Road

Cross Street	2014	2013	2012	*(Total)*
Arsenal	9	5	7	*21*
Hartford	2	0	1	*3*
Juniata	2	3	1	*6*
Connecticut	0	2	2	*4*
Wyoming	1	2	1	*4*
Humphrey	1	0	0	*1*
Utah	0	0	1	*1*
Fyler	0	3	2	*5*
Fairview	1	1	0	*2*
Potomac	0	0	0	*0*
Oleatha	1	1	0	*2*
Miami	0	0	1	*1*
Tholozan	2*	2	2	*6*

*pedestrian involved

Table 16 - Existing Accident Data for Hartford Street

Cross Street	2014	2013	2012	*(Total)*
Oak Hill	2	2	3	*7*
Bent	1	0	0	*1*

Table 17 - Existing Accident Data for Juniata Street

Cross Street	2014	2013	2012	*(Total)*
Oak Hill	1*	0	0	*1*
Bent	2	1	2	*5*

*pedestrian involved

Peak Observations

CBB completed peak period observations within the Ward on December 3, 2015. These specific intersections were selected based on the input received at the public meeting, as well as the comments on the survey. The peak AM time is between 7 a.m. to 8:30 p.m. and the PM peak is between 4 and 6 p.m. The purpose of the peak period observations are to examine traffic and pedestrian activities within the study area. The locations were selected based on comments provided in the survey, as well as feedback obtained from the public meeting. A list of locations and the issues associated with the location is below. The comments referenced running stop signs, high speeds, poorly located parking areas and low pedestrian connectivity. The summary of notes from these observations is listed below.

- Grand & Humphrey (pedestrians)
- Morganford & Hartford (safety)
- Grand between Utah & Gravois (pedestrian issues/Schnucks access)
- Roger corridor (stop signs)
- Sight Distance
    - Hartford & Morganford
    - Morganford & Wyoming
    - Gustine & Juniata

The peak observations confirmed the worries of the residents in most locations, but some behavior was not observed. The main area of concern noted by the field observations Grand Boulevard between Cherokee Street and Potomac Street (where the Schnuck's shopping center is located on the east side of Grand Boulevard). In addition to the grocery store, there is a Metro stop on each side of Grand Boulevard and there is heavy pedestrian activity in this area. Roughly two dozen people were seen darting across the four lanes of traffic to access the bus stops and the grocery store. There is no easily accessible pedestrian crossing at this location, but destinations on both side of the road involve foot traffic (the "streetscaped" segment of Grand Boulevard is north of Utah Place).

Sight distance is an issue at many of the intersections for a mix of reasons including landscaping, stop sign placement and building location. The intersection of Morganford and Hartford is a safety concern because of the one-way street direction change at Morganford Road, a parking lot adjacent to the intersection and the traffic on Morganford does not have a stop sign. There is a light within close proximity at Arsenal Street. One recommendation from a survey responded was adding a sign to Hartford indicating that cross traffic does not stop.

Many residents were concerned that running stop signs on Roger is a problem. Although this behavior was not observed repeatedly, it was noted how this problem may exist. For example, many of the streets that intersect Roger Place are one-way toward that street, resulting in few potential exits for a motorist. The situation results in the majority of vehicles being "thru-traffic" and potentially reducing incentive to stop.

Infrastructure Inventory

A high-level "overview" of the transportation infrastructure in the study area was performed to document the existing conditions. The inventory utilized GIS databases and other existing electronic sources, such as Google Earth, to note the general state of the infrastructure (e.g. the presence, configuration and general dimensions of roadways, sidewalks, bike lanes and pedestrian ramps). The end product is a web-based map of the study area that the project team utilized to verify field conditions while developing alternatives and recommendations. An example "screen shot" of the inventory is shown in **Figure 16.**

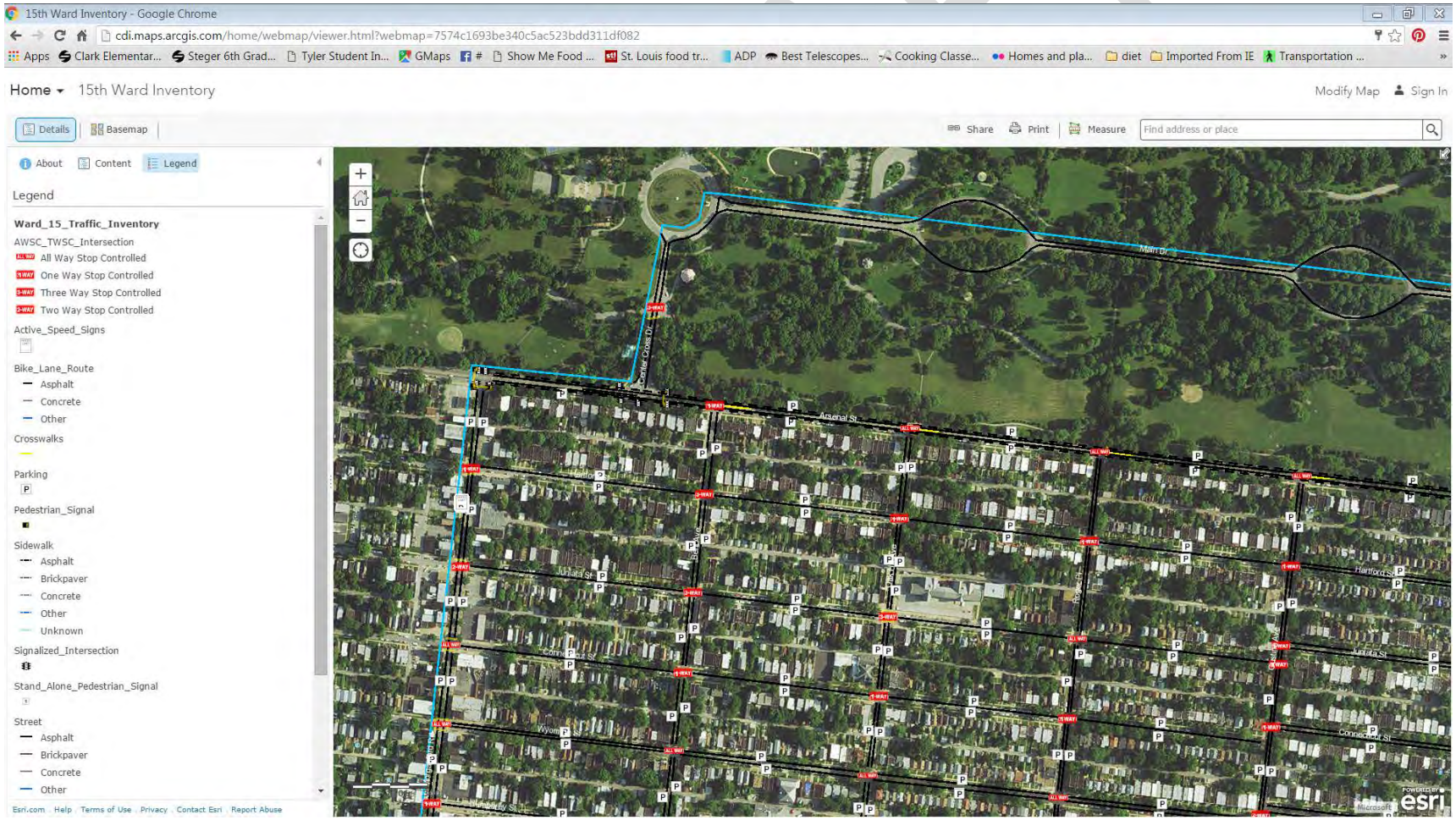


Figure 16: Ward 15 Study Area Web-Based Infrastructure Inventory Screen Capture

Issue Identification

The field data and observations confirmed issues in the Compton Avenue corridor noted by the Ward 15 residents in the survey, public meeting, and through previous comments to Alderwoman Green. These issues are discussed in the following paragraphs.

Cut-thru Traffic

Many residents voiced concerns about cut-through traffic in the neighborhood. Juniata and Hartford Streets were specifically noted. A motorist travelling northbound on Grand Boulevard cannot make a left turn to Arsenal Street, so there is a perception traffic is using these parallel streets as an alternative to Arsenal. Gustine Avenue was also indicated as a perceived cut-thru street for motorists as an alternative to south Grand Boulevard.

The origin-destination study found that on Juniata Street, through vehicles represent less than 3-percent of the weekday and less than 5-percent of the weekend peak period traffic east of Morganford Road. On Hartford Street, the figures were a bit higher with through traffic representing up to 6-percent of weekday and up to 7-percent of weekend peak period traffic volumes west of Grand Boulevard. These percentages can be expected within an urban grid network. However, the results for Gustine Avenue are significant: peak period weekday through-trips account for as much as 62-percent of the vehicular traffic volume entering the segment. During the weekend peaks, the ratio is 44-percent or less. These high percentages indicate that at times when Grand Boulevard is likely to be congested, Gustine is potentially being utilized as an alternate route. While the percentage is high, this volume represents (at the highest count) 96 vehicles traveling through Gustine between McDonald Avenue and Arsenal Street in one hour – or about 3 vehicles every two minutes. These volumes are more perceptible, however, when the through traffic does not consider the surrounding land use. In fact, residents referred to many streets as “raceways” for traffic trying to cut through their neighborhood and are concerned over the lack of stop sign compliance.

Running Stop Signs

Residents have a high concern for the rate of motorists running stop signs within the area. While the behavior was not observed to be minor during the peak observations, it was mentioned several times in survey responses and at the public meeting and is an important issue for the neighborhood. One comment from the public meeting said there is a ‘huge problem of not actually stopping at stop signs’ and this sentiment was reinforced through the public meeting exercise as well as the surveys. Specific routes where running stop signs was indicated as a problem:

- Spring
- Roger
- Arsenal
- Utah

It is important to note that some residents encouraged or even requested the removal of multiple stop signs, however others indicated they would be interested in adding stop signs to certain streets. Residents mentioned multiple times in the survey that the addition of more, clearly marked stop signs on Gustine would benefit the neighborhood. The intersections of Bent Avenue with Connecticut Street, and Oak Hill Avenue with McDonald Avenue were also identified as places where stop signs could be added.

Speeding

Residents are concerned about speeding within their neighborhood; the concern is connected to the perception traffic is generated by cut-thru vehicles. Many survey respondents indicated they felt speeding is a major problem on interior streets because motorists are trying to avoid travel on Arsenal Street and/or Grand Boulevard. Sixty five (65) percent of survey respondents indicated they are very concerned with speeding in their neighborhood, and when asked how well motorists obey traffic rules, the majority was below average. Specific streets of concern were:

- Gustine Avenue
- Hartford Street
- Juniata Street
- Roger Place
- Arsenal Street
- Spring Avenue
- Utah Street
- Alfred Avenue (in Ward 10)

Due to the residential concerns, speed studies were performed for this study on four of the study routes, focusing on those that overlapped other areas of concern: Gustine Avenue, Hartford Street, Juniata Street, and Roger Place. The locations on each route were chosen to gather data from different areas of the network (shown in **Figure 10**, page 22). The speed data indicated that average speeds on all four routes were less than 25 mph. Rodger Place had the smallest volume of vehicles exceeding 30 mph, with less than 3-percent of the daily traffic volumes. On Gustine Avenue, 5-percent of the daily traffic volume exceeds 30 mph, although the incidence is higher for southbound traffic than northbound traffic, which could potentially reflect the speed study location just south of Arsenal Street. On westbound Hartford Street, the daily average was 8-percent. The most significant results were on Juniata Street, where an average of 14-percent of the daily traffic exceeded 30 mph; even more relevant is the finding that the situation is nearly all related to westbound traffic (25-percent vs. 4-percent of daily traffic). Again, the finding is likely connected to the fact that speeds were collected west of Grand Boulevard.

Overall the results indicate that traffic entering the neighborhood streets from one of the arterials is more likely to be exceeding 30 mph, although on most of the routes the rate of occurrence is not significant.

Street Network/Traffic Flow/One-way Streets

Survey respondents indicated that traffic flow is important to them (51-percent) and many had comments related to the one-way streets within the neighborhood (shown in **Figure 5**, page 15) and the direction change of those streets. Specific areas of concern were:

- No left turn on Arsenal Street from Grand Boulevard (cutting thru on Juniata and Hartford)
- McDonald Avenue (library traffic)
- Roger Place and Parker Avenue
- Roger Place and Fairview Avenue
- Roger Place and Potomac Street
- Bamberger to Potomac Street
- Spring Avenue one-way direction in the 'wedge" (Gravois Avenue)

Many of the complaints from the survey and the public meeting were related to locations where one-way streets change direction mid-segment (or "dead end" to each other), confusing neighborhood circulation patterns. Field observations also noted the one-way direction changes at Roger Place were confusing and could contribute to increased speeds on Roger as vehicles cannot exit the corridor in that segment.

Lacking Pedestrian Facilities

Sixty-eight of the survey respondents indicated they are concerned about sidewalks; users find the system disconnected and unsafe. The investigation confirmed that, while there is a good network of sidewalks, pedestrian facilities within the neighborhood are disjointed due to the lack of marked pedestrian crosswalks. The situation is compounded by the fact that the neighborhood had three significant pedestrian destinations along its borders: Tower Grove Park, the South Grand district, and the Morganford commercial corridor. Neighborhood access to Tower Grove Park is a frequent complaint, residents are frustrated and feel unsafe trying to cross Arsenal.

Another area of pedestrian concern, detailed in both the public meeting and in multiple survey responses, is Grand Boulevard near Fairview Avenue. There is significant pedestrian traffic in the area due to the Schuck's Market and the MetroBus stops for both northbound and southbound Route #70. Within this segment, Grand Boulevard is five lanes wide (two lanes for each direction with a center two-way-left-turn-lane) and pedestrians are frequently observed crossing the street mid-block. There is no marked pedestrian crossing of Grand Boulevard at Fairview Avenue; the nearest ones are at McDonald Avenue or Gravois Avenue over 400-feet and 800-feet away, respectively.

Alternatives

As anticipated, the study area will benefit from traffic-calming strategies. The goal of traffic calming should be to change how the street functions, rather than rely on strategies such as signage or enforcement to change user behavior.

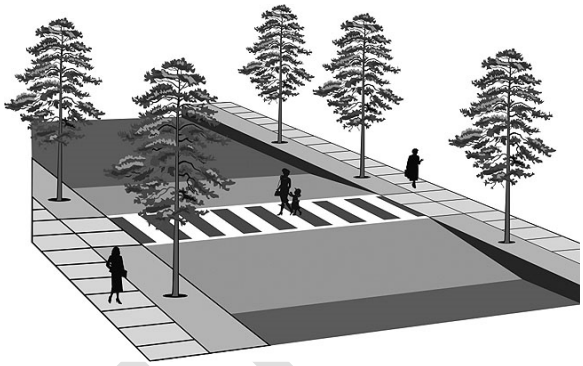
Traffic Calming Overview

The Institute of Transportation Engineers (ITE) defines traffic calming as: "The combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users." By design, traffic calming is a self-enforcing traffic management approach that forces motorists to alter their speed or direction of travel. The purpose of traffic calming is to improve safety, especially for pedestrians and bicyclists, and to improve the environment or "livability" of streets for residents and visitors. Enhanced safety is one of the most fundamental benefits of traffic calming. By decreasing volume and/or reducing speed the number and severity of accidents is greatly diminished. The objectives of traffic calming include:

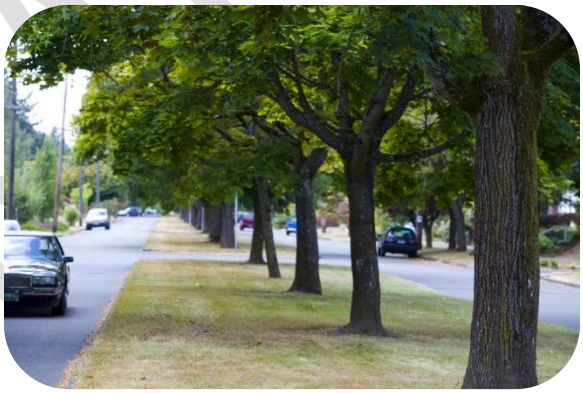
- Slow vehicular travel speeds
- Increase safety for non-motorized street users
- Reduce the frequency and severity of collisions
- Increase access for all modes
- Reduce the need for police enforcement
- Enhance the street environment
- Reduce cut-through motor vehicle travel patterns

Traffic calming measures can generally be separated into three groups based on the goal they are trying to achieve: speed control, volume control, and safety enhancement. These three categories are not as distinct as they may seem – for example, speed reduction measures may divert traffic to other streets (reducing volume) and efforts to control cut-through traffic may also decrease the speeds of the traffic using the road. Similarly, certain safety enhancements have the additional benefit of raising driver awareness and slowing traffic. Effective traffic calming strategies often include using more than one of the tools. Traffic calming should be designed with a systematic approach, appropriate spacing of measures, and consideration for secondary effects of the installations. Examples of the three strategies are:

- Speed-Control Strategies:
  - Speed Hump
  - Speed Table
  - Raised Crosswalk
  - Raised Intersection
  - Rumble Strip
  - Textured and Colored Pavement
  - On-Street Parking
  - Modern Roundabout
  - Narrowed Lane
  - Curb Extensions, Bulbs, or Bump-outs
  - Chicane
  - Median or Island
  - Landscaping, Street Trees
  - Pavement Marking
  - Signage
  - Edge Treatment
  - Reduced Corner Radii
- Volume-Control Measures
  - Roadway Closure
  - Diverter
  - Turn-Restriction
  - One-way Street, Circulation Change
- Safety Enhancements
  - Lighting
  - Dedicated Bike Lanes
  - Pedestrian Refuge Areas



Speed Table/Raised Crosswalk



Street Trees for Traffic Calming

A table summarizing these strategies and outlining their potential benefits and issues can be found in **Appendix F**. Please note that the table provides a general outline, but the success of these alternatives is very site-specific. There is not a single tool to solve all traffic issues and one tool that may work well in one area for a particular issue may not be effective in another situation. Key to successful traffic calming is community acceptance and municipal support/maintenance[1].

Multiple strategies are applicable to the Ward 15 study area, as discussed in the following sections. These alternatives will have varying degrees of potential benefits and costs and depend partially on their location and degree of installation. It is recommended that suggested alternatives be implemented in a tiered or layered approach. Some of the lower-cost and less disruptive strategies may provide significant improvement. Area traffic patterns and behaviors should be observed for some time after installation of any improvement. If, after some time, additional mitigation is warranted, another strategy can be implemented. It is recommended

[1] *Traffic Calming Resource Guide*: South Central Regional Council of Governments; June, 2008

that lower-cost approaches be tried first and traffic monitored for improvement. Additional alternatives can then be installed as needed.

Pavement Markings

Pavement markings can elevate a traveler's (of all modes) spatial and temporal awareness. At the same time, they are generally less expensive and easier to install compared with other traffic-calming options and are often more familiar to road users and less disruptive to emergency service vehicles and roadway drainage patterns than other traffic calming devices.

Lateral Striping (Crosswalks and Stop-Bars)

Lateral striping (e.g. pedestrian crosswalks and stop-bars) breaks up long vistas and creates the perception of multiple travel segments. Crosswalks have the added benefit of making motorists and cyclists more aware of their surroundings and elevating the presence of pedestrians and cyclists within the corridor.

Very few intersections within the study corridor currently have striped crosswalks or stop-bars, although all intersections are served by sidewalks. Crosswalks are an extension of the sidewalk path and denote the dedicated pedestrian zone in a roadway. A stop bar installed before the crosswalk (in the direction of travel) notes where the driver should stop to provide a buffer to crossing pedestrians, elevating their user comfort. Providing these marked links may also increase usage of the pedestrian facilities within the corridor.

There are multiple styles of crosswalk striping. In the St. Louis area, "standard" (two parallel lines in the direction of travel) and "continental" (multiple bars perpendicular to the direction of travel) are typically used. The continental crosswalks provide higher visibility than standard crosswalks and offer the potential to last longer.

Example of "Continental" Striped Crosswalk (foreground); Standard Crosswalk (background); and Stop Bar (right side)

Longitudinal Striping

Longitudinal striping (e.g. edgeline striping) visually restricts a driver's travel path, which has been shown to reduce driver speeds particularly on long, straight roadways with wide travel lanes. The photo shows an example of edge line striping visually narrowing a roadway. Before and after studies have shown that speed reductions in the range of one to seven miles per hour are easily accomplished through roadway striping. Another advantage is that linear striping denoting other roadway uses such as parking or bike lanes define the various functions of the roadway as a multi-use neighborhood facility.

Example of Edgeline Striping to Visually Reduce Roadway Width

There are numerous striping alternatives that can be used for traffic calming. The basic concept of striping for traffic calming is to reduce the driver's perceived width of the roadway. By doing this, motorists tend to reduce speed and may also divert from a particular route as a result of their perception or overall lower travel speeds. There are several alternatives for striping as traffic calming[2]:

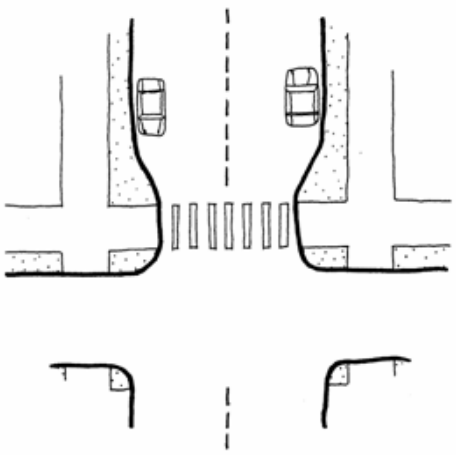
- Centerline stripe –a typical single dashed yellow line or double-yellow stripe between the travel directions
- Edge lines – white lines added to the outside of the travel lane
- Striped median – a two-way left-turn lane (TWLTL) or yellow-striped buffer
- Striped choker or chicane – although not as prominent as a raised curb, it does provide some of the operational features and/or can be installed temporarily
- Striped speed hump without the vertical displacement – especially useful where vertical displacement is undesirable

[2] *Roadway Striping as a Traffic Calming Option*: Robert Kahn, PE and Allison Kahn Godecke, MBA; 2011

Horizontal Deflection

This category of traffic-calming techniques includes all those that reduce the area of the street designated exclusively for motor vehicle travel and/or which require the drivers to stray from the perceived path to complete their movement. "Reclaimed" space from area reductions is typically used for pedestrian or cyclist amenities, parking, and/or landscaping.

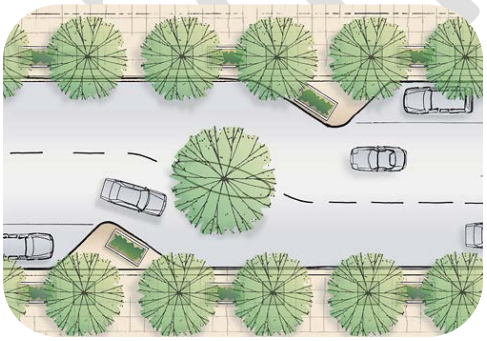
Curb Bulbs, Bump-outs, or Extensions



Curb Extensions

Curb bulbs are extensions or enlargements of the sidewalks at intersections or mid-block locations that narrow the street. In mid-block locations they are typically called chokers and can narrow the street to two narrow lanes or even a single lane. Curb extensions can be installed as vertical curbs or as striped or painted areas. Vertical curb extensions work well with speed humps, speed tables and raised median islands; however they should be carefully considered for streets with bike lanes as cyclists do not like to be forced into the vehicular lanes. Designing for appropriate roadway drainage is a key consideration for vertical curbs; although some installations utilize a channel for drainage, these can be very difficult to maintain (i.e. they can easily fill with debris and must be manually cleaned out). Curb extensions for a crosswalk will reduce the pedestrian crossing width and increase their visibility (as they are nearer to the driving lanes when standing at the curb edge). Therefore, curb extensions offer the potential to both increase pedestrian safety and decrease travel speeds by physically narrowing the roadway. Finally, curb extensions can also offer an opportunity for landscaping and decorative elements.

Chicanes



Chicane

Chicanes utilize curb extensions or on-street parking to curve or alter the driver's path, often creating s-shaped curves within a mid-block segment. The intent of a chicane is to reduce vehicle speeds, although they must be carefully designed or drivers can cut straight paths across the centerline.

Narrowed Lanes

Twelve-foot driving lanes have been utilized in the past as a measure of safety; providing ample room for vehicles and accommodating small deviations (errors) in path. However, the additional room for error has also encouraged higher speeds on our roads. Narrowed lanes encourage drivers to reduce speeds and be more attentive to driving behaviors. Narrowed lanes can also reduce pedestrian crossing distances and provide dedicated space for cyclists, parking, and landscaping. It is not uncommon for local streets to be as narrow as 28-feet with parking on both sides. These are sometimes referred to as "queuing streets" as two vehicles cannot pass side-by-side where cars are parked on both sides. These streets have been demonstrated to be as safe (or safer) than wider streets.

A "Queuing Street"

On-Street Parking

The sense of enclosure resulting from parked cars, the varied appearance of parked cars, the entry/exit vehicle maneuvers, and the pedestrian traffic generated by occupants of parking and departing vehicles all contribute to traffic calming on streets with parking. Curbside parking can be parallel or diagonal, but all types should be considered in the context of bicycle use of the street as parking maneuvers and door openings are obstacles to bicyclists.

Narrowed Lanes with Parallel Parking

Vertical Deflection

This category includes all traffic-calming devices raised above pavement level, requiring drivers to slow down to navigate them comfortably.

Speed Humps

Speed humps are rounded, raised areas of pavement placed across the roadway perpendicular to the flow of traffic. Speed hump heights are 3 to 4 inches at their peak. They are typically used on local streets (avoiding transit and primary emergency service corridors) and are placed mid-block (not at intersections), and work well with mid-block curb extensions. Speed humps are typically marked with striping and advance warning signage. Speed humps are often used to reduce speeds but, like stop signs, can sometimes cause an increase in speeds between successive installations. Speed humps are typically unpopular with cyclists and can potentially increase traffic noise due to braking and acceleration of vehicles (especially buses and trucks); their design also needs to carefully consider roadway drainage patterns.

Speed Hump

Speed Tables / Raised Crosswalk

Speed Table as Raised Crosswalk

Speed tables are similar to speed humps, but have a flat section in the middle and tapered approaches (i.e. are wider in the direction of travel). The flat "top" of a speed table is roughly 10-feet, or as wide as the wheelbase of a passenger car, with ramp 6-foot wide ramp approaches. Like speed humps, they are designed to be 3 to 4 inches tall and need to carefully consider roadway drainage in their design. Speed tables work well with curb extensions and are often combined with crosswalks to elevate the pedestrian and increase their visibility (increasing the likelihood that a driver will yield). As raised crosswalks, they elevate the visibility of pedestrians while also proving them a continuously level crossing path (benefitting accessible-design).

Traffic Diversion

Traffic diversion is, historically, one of the most widely applied traffic-calming concepts. Includes all devices that cause motor vehicles to slow and change direction to travel around a physical barrier. Physical barriers used to divert traffic can range from trees planted in medians to, roundabout intersections to full street closures.

One-Way Streets / Circulation Change

Streets are designed as (or converted to) one-way traffic flow for various reasons including increasing capacity, reducing the number of potential conflicts (for drivers and pedestrians), and/or changing network circulation patterns. One-way streets typically work best in central business districts and/or heavily congested areas. However, one-way streets often tend to have higher speeds than two-way streets, as drivers do not need to be cautious of oncoming traffic. One-way streets can also increase travel distances of motorists and create confusion for non-local residents. Some places are converting one-way streets back to two-way to allow better local access and to slow traffic. Two-way streets tend to be slower due to "friction", especially on residential streets without a marked centerline.

Traffic Diverters

Traffic diverters are physical barriers installed at intersections that restrict motor vehicle movements in certain directions. They may be designed to prevent left- or right-hand turns or to block through travel. The "pots" frequently utilized in the St. Louis area would be considered traffic diverters. As with all traffic-calming strategies, accommodations for pedestrians and cyclists (as well as transit routes and access) should be carefully considered when designing with diverters.

Modern Roundabout Intersections

Modern roundabouts are a channelized intersections in which all traffic moves counterclockwise around a central traffic island. Traffic approaching the intersection is "deflected" to approach the circular roadway at an angle, which slows traffic speeds during the approach. The center islands may be painted or raised and may include landscaping or other improvements. Roundabouts are designed to move traffic at speeds of, roughly, 15 mph through the intersection.

Roundabout Intersection Conversion

Modern roundabouts are used on all classifications of streets. They have proven to be effective in reducing motor vehicle speeds and the number and severity of intersection crashes versus signalized intersections as well as being less costly to maintain. Modern roundabouts can have larger or smaller center islands depending on the size of the intersection and the number of intersecting roadways. However, roundabouts typically require more right-of-way than traditional intersections and, for this reason, can be difficult to implement in developed areas. Roundabouts can also be tricky for pedestrians and cyclists to navigate.

Mini-Roundabouts or Traffic Circles

Traffic Circle

Mini-roundabouts or traffic circles are often confused with modern roundabout intersections. However, these installations have small (typically less than ten feet in diameter), usually raised, center islands and are mainly placed in the intersection of two local streets for traffic calming, with no modifications to the approaching roadway geometry. Traffic circles can be painted or raised islands, and are usually installed with signage alerting drivers of the diversion. However, the signage or landscaping that is frequently installed in the circle can impact sight distance for drivers, especially concerning pedestrians crossing "behind" them. The warning signs can also be unpopular with residents in areas where there are concerns over too much signage.

Temporary Traffic Circle Installation

The City of St. Louis has recently initiated a program where a temporary traffic circle, can be installed in a location to test its effectiveness and popularity. If there is neighborhood interest, these temporary installations can be requested from and coordinated with the City Streets Department.

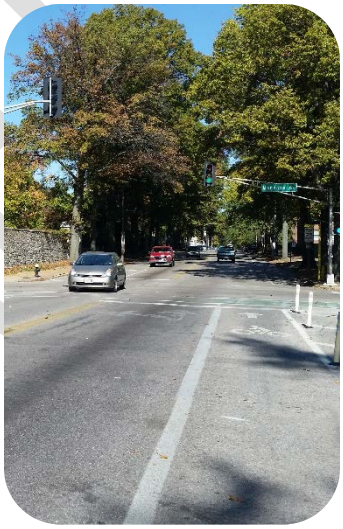
Safety Enhancements

The term traffic calming is applied to many design interventions that make streets safer by reducing opportunities for speeding and aggressive driving. There are additional strategies in the traffic calming toolbox that are aimed at improving safety for pedestrians. Like other strategies, many of these can overlap multiple goals – contributing towards reductions in vehicular speeds and volumes as well.

Dedicated Bike Lanes

Dedicated bike lanes are on-street facilities at least 5-feet wide for direction of travel, intended to define a portion of the roadway for cyclists. Bike lanes are generally marked with painted lines, although some bike lanes have physical barriers between motorized traffic and cyclists. Bike lanes serve benefit the transportation network in many ways, they:

- provide space for all users
- support the bicycle network
- reduce pedestrian crossing distances
- create additional buffer space for pedestrians
- increase drivers' visibility and awareness of cyclists
- reduce turning conflicts with vehicles as drivers know where to look for cyclists
- calm traffic by reducing or narrowing lanes



Dedicated Bike Lanes on Arsenal Street

Mid-Block Crossings

Mid-block crossings provide additional roadway crossing points for pedestrians. Mid-block crossings can also be safer than intersection crossings because they are free of vehicle turning movements. These crossings are most effective when placed in locations where pedestrians are already crossing without dedicated or marked facilities. Marked mid-block crosswalks should be accompanied by signage or dedicated signals to help ensure motorists yield to pedestrians.

Pedestrian Refuge Areas

The goal of pedestrian refuge areas are to support pedestrians and cyclists trying to cross a busy roadway. They are often provided in street medians or near the curb, and reduce the amount of time a pedestrian is exposed to potential vehicular conflicts. This is

Mid-Block Crossing with Pedestrian Refuge Areas

especially important to elderly and disabled persons, as well as those traveling with small children

Lighting

Lighting can affect the apparent width, and feel, of the roadway in several ways: by the size and placement of the poles, by the height and pattern of the light when illuminated, and through the sense of "enclosure" created by overhead lights. Pedestrian-scale lighting provides illumination for the sidewalk as well as the roadway, signifying an area of special concern where pedestrians may be present. Pedestrian-scale lighting discourages crime and makes it more inviting to walk at night. The streetlamps also function as street furniture and can contribute to a more pleasant atmosphere even during the day. Pedestrian scale lighting is defined by lamp heights of 12-15 feet, with a longitudinal spacing of approximately 50- to 75-feet.

Street Furniture

Street furniture also creates a sense of enclosure and "passive" activity in the corridor. This category includes elements such as signs, signals, lights, walls, gateways, fencing, and pedestrian furnishings. Street furniture can both provide separation for the pedestrian pathway and traffic, and create "passive" activity in the corridor, encouraging slower speeds.

Street Furniture

Street Trees

Tree trunks lining the roadside create a sense of enclosure and contribute to a reduced apparent width. The overhead tree canopy further ads to the perception of a narrowed road since the light/shade patterns created on the pavement create a sense of texture. Street trees enhance the pedestrian environment by creating shade and more comfortable temperatures.

Recommendations

Ward 15 residents have indicated that traffic calming and safety enhancement strategies are desired for the Tower Grove South neighborhoods. Field data and observations confirm interventions are warranted to address vehicular and pedestrian concerns. As discussed previously, traffic calming strategies can, and often do, achieve more than one of the common goals of controlling speeds, reducing volumes, and enhancing safety.

The following recommendations address various areas of concern and specific issues in several ways. There are corridor-specific recommendations for Arsenal Street, Morganford Road, and Grand Boulevard as well as recommendations for several corridors, grouped by East-West streets and North-South streets. As shown in **Figure 17,** most of these recommendations cross one or more of the Tower Grove South Neighborhood Association (TGSNA) boundaries.

As many of these recommendations include new or upgraded pavement markings, it is very important to note that the roadway pavement in some of the locations may be in such poor condition that resurfacing may be necessary before any kind of pavement marking is installed. If paint or thermoplastic striping is applied on deteriorated pavement, the new markings will decline and disappear rapidly. In addition, if the pavement of an intersection is resurfaced, it will also require that any pedestrian facilities (sidewalks and access ramps) are rebuilt to meet the current American Disabilities Act (ADA) guidelines. Therefore, the need for pavement rehabilitation, will make a striping project at that intersection more costly and time-consuming (although safer for pedestrians). Therefore, before striping projects are scheduled at any of the intersections, the City Streets Department should be consulted regarding the current condition of the pavement in each location.

There are potential federal funding sources that can be applied for to support the installation of these recommendations. The programs are managed by The East-West Gateway Coordinating Council (EWGCC) and the project sponsor would be the City of St. Louis. The Transportation Alternatives Program (TAP) provides funding for on- and off-road pedestrian facilities and would be a potential source of funding for traffic calming projects, providing up to 80-percent of the necessary funding if selected. More information can be found on the EWGCC website at: http://www.ewgateway.org/TransAlternatives/transalternatives.htm. Because Compton Avenue is classified as a minor arterial, it is also potentially eligible for funding through the Surface Transportation Program-Suballocated (STP-S). STP-S funds can be used for various project types including pedestrian facilities, safety, and pavement preservation. More information on this program can be found on the EWGCC website at: http://www.ewgateway.org/TIPAppInfo/tipappinfo.htm

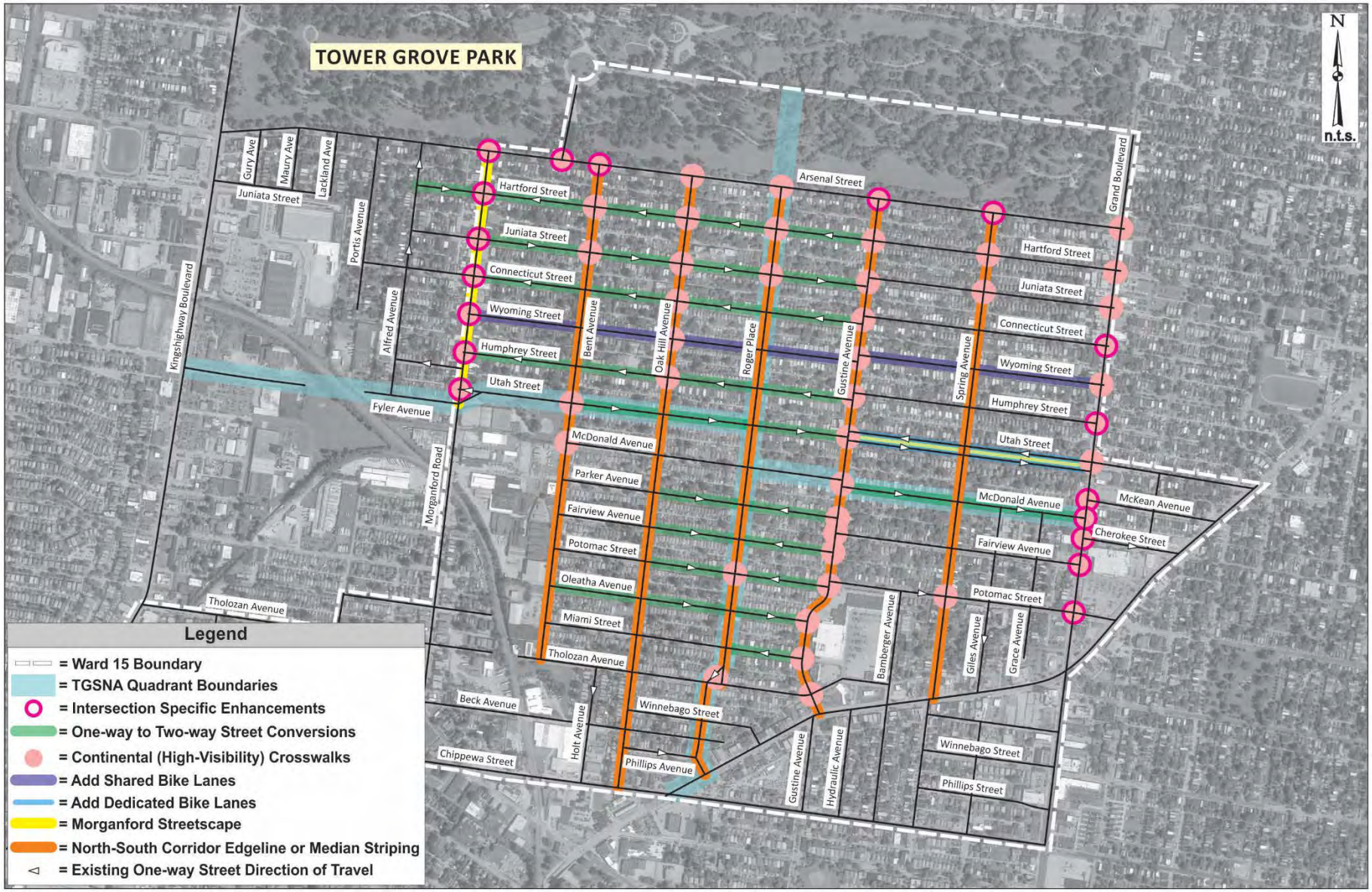


Figure 17: Ward 15 Tower Grove Neighborhood Traffic Study Recommendations Map

East-West Corridors

Many of the concerns over speeding and cut-thru traffic were focused on the east-west corridors at the north end of the neighborhood, particularly Arsenal, Hartford and Juniata Streets. In particular, Juniata was found to have a higher percentage of vehicles exceeding the speed limit than other sampled locations. Arsenal Street is addressed as a separate corridor, however the residential streets share some common factors that can be addressed system-wide to potentially calm neighborhood traffic. The recommendations for the east-west corridors are shown in **Figure 18** and discussed in the following section; a summary of conceptual costs is shown in **Table 18**.

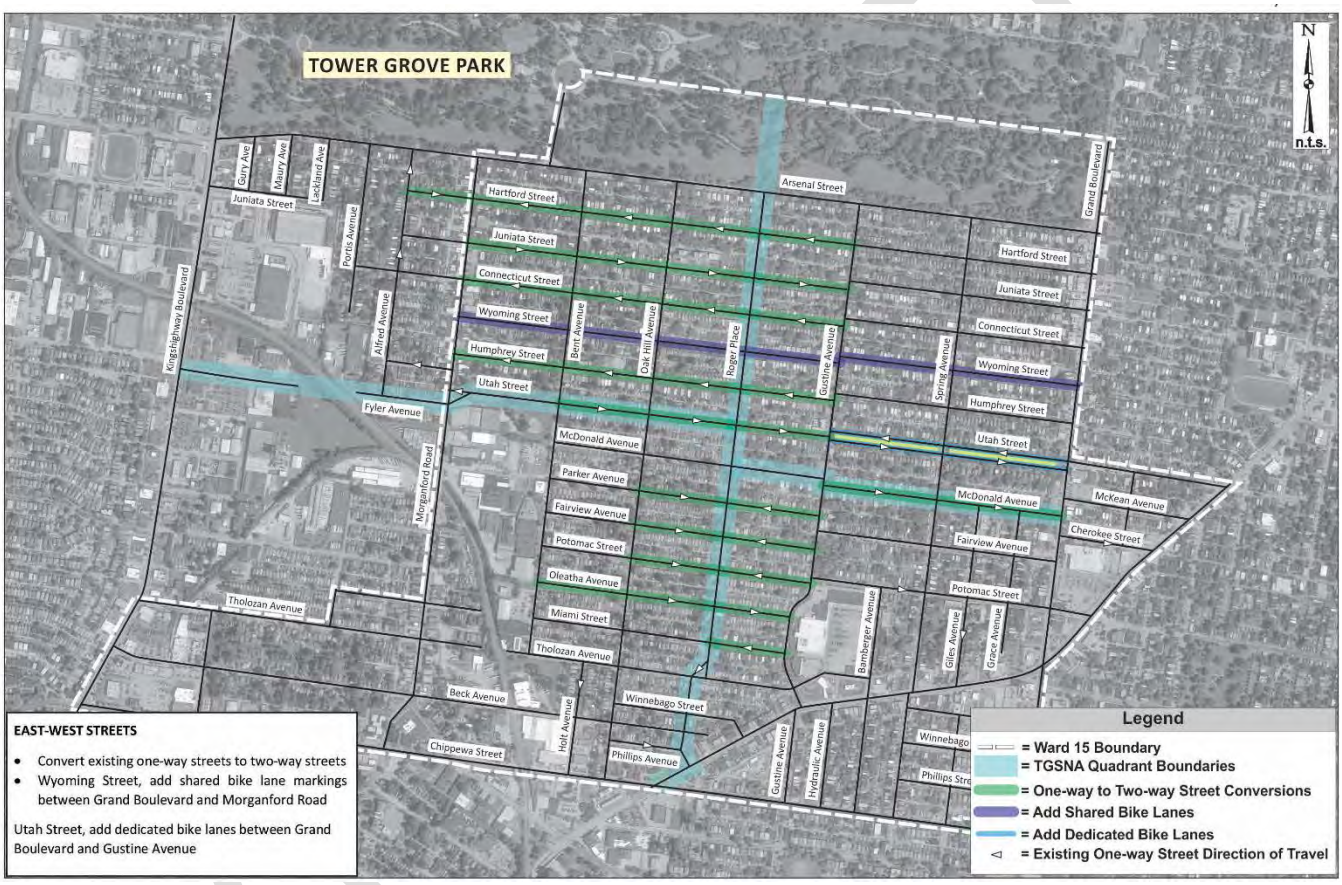


Figure 18: One-way to Two-way Street Conversions

Table 18 – East-West Corridors Conceptual Costs

Item	Conceptual Costs
Signage	$ 5,000
Bike Lanes	$ 18,000
TOTAL	**$ 23,000**

One-way to Two-way Street Conversions

One of the primary issues identified was the concerns over the street network circulation. Some of the other primary issues can be also be tied to the existing network connectivity, such as speeding and cut-thru traffic. Therefore, it is recommended that many of the one-way streets within Ward 15 be converted to two-way travel with no changes to the existing parallel parking (on both sides of the street), as shown in **Figure 18**. The two-way streets will reconnect the grid and distribute traffic volumes more evenly as well as encourage motorists to be more attentive to driving behaviors. The existing one-way streets in Ward 15 are typically 36-feet wide or less, as listed in **Table 19**. As two-way streets, the narrower roadways will act as "queuing streets" requiring drivers to coordinate passing in areas where vehicles are parked on both sides of the street. Although there may be concerns over converting the narrower streets to two-way, many of those streets already operate as two-directions in selected blocks. Instead, the change will reduce driver confusion and create uniformity within the neighborhood. An exception to the conversion is Humphrey Street west of Morganford Road, which is a 20-foot wide roadway. In order to maintain the permitted parking, this segment of Humphrey Street should remain one-way.

Table 19 – One-Way Streets

Street Name	*Direction of Travel*	*Number of One-Way Blocks (in study area)*	*Street Width(s) (ft)*
Hartford Street	Westbound	5 of 7	36 west of Grand 30 west of Gustine
Juniata Street	Eastbound	4 of 7	36 west of Grand 30 west of Gustine
Connecticut Street	Westbound	4 of 8	36 west of Grand 30 west of Gustine
Humphrey Street	Westbound	5 of 7	36 west of Grand 30 west of Gustine 20 west of Morganford
Utah Street	Eastbound & Westbound	5 of 6	28 west of Grand (each direction) 30 west of Gustine 36 west of Roger
McDonald Avenue	Eastbound	2 of 5	30 west of Grand 36 west of Gustine 30 west of Roger Place
Parker Avenue	Eastbound & Westbound	2 of 3	26
Fairview Avenue	Eastbound & Westbound	2 of 5	36 west of Grand 26 west of Gustine 28 west of Oak Hill
Potomac Street	Eastbound & Westbound	2 of 5	30
Oleatha Avenue	Eastbound	3 of 3	26
Miami Street	Westbound	1 of 3	26

The conversion of one-way to two way streets would primarily require the removal of one-way signage. The largest impacts of such a change are at intersections. Within the study area, most of the affected intersections are stop-controlled and, therefore, would go from 2- or 3-way stop-controlled to all-way stops. The only affected intersection that is signal-controlled is the intersection of McDonald Avenue. At this location with Grand Boulevard should be re-striped to allow for a northbound left-turn lane. Traffic volumes should be monitored after the conversion to determine whether a left-turn-only phase is warranted.

Bike Lanes

Morganford Road, Gustine Avenue, and Grand Boulevard are all defined as north-south bicycle corridors (as shared bike lanes) through the Ward 15 study area. The east-west bicycle corridors are Arsenal Street and Chippewa Street, both with dedicated lanes, at the north and south boundaries of the study area. To provide additional east-west connections for cyclists, it is recommended that Wyoming Street be marked as a shared bike lanes between Grand Boulevard and Morganford Road. Wyoming Street is approximately 36-feet wide throughout the study area, a width that will accommodate the shared use.

It is additionally recommended that Utah Street between Grand Boulevard and Gustine Avenue be striped with dedicated bicycle lanes. Each direction of travel in this segment has a separate roadway (divided by a wide, landscaped median) that is 28-feet wide and is currently utilized for a single travel lane and single, parallel-parking lane. It is recommended that a 6-foot-wide (minimum) dedicated bicycle lane be striped for both directions. The lane would begin 12-feet from the outside curb (to provide for parallel parking and a buffer area), thereby defining the parking, bicycle (6-foot wide), and vehicular (10-foot wide) zones. Where the eastbound roadway ties back in to the westbound (just west of Grand Boulevard) this new striping would replace the current dedicated turn-lane markings.

North-South Corridors

There were areas of concern, including traffic speeds and pedestrian concerns, for several of the north-south corridors. Especially Gustine Avenue and Roger Place (Morganford Road is discussed separately). Gustine Avenue, in particular, was found to have the highest percentage of potential cut-thru traffic, a situation which can also encourage higher vehicular speeds. It is also important to note that the adjacent land uses typically do not face these streets, hence the curbside parallel parking is much less utilized. The recommendations for these corridors are shown in **Figure 19** and discussed in the following section; a summary of conceptual costs is shown in **Table 20**.

It should also be noted that residents had very mixed emotions related to stop signs in these corridors, with residents indicating they need to be removed in certain places, or added in others. There was a lot of feedback on people running stop signs as well, and mixed opinions on the thoughts of using stop signs as a traffic calming measure within the neighborhood. The general approach for this study is to calm traffic through geometry rather than control. However, stop signs can be an important factor in pedestrian safety and should continue to be a potential tool for the neighborhood.

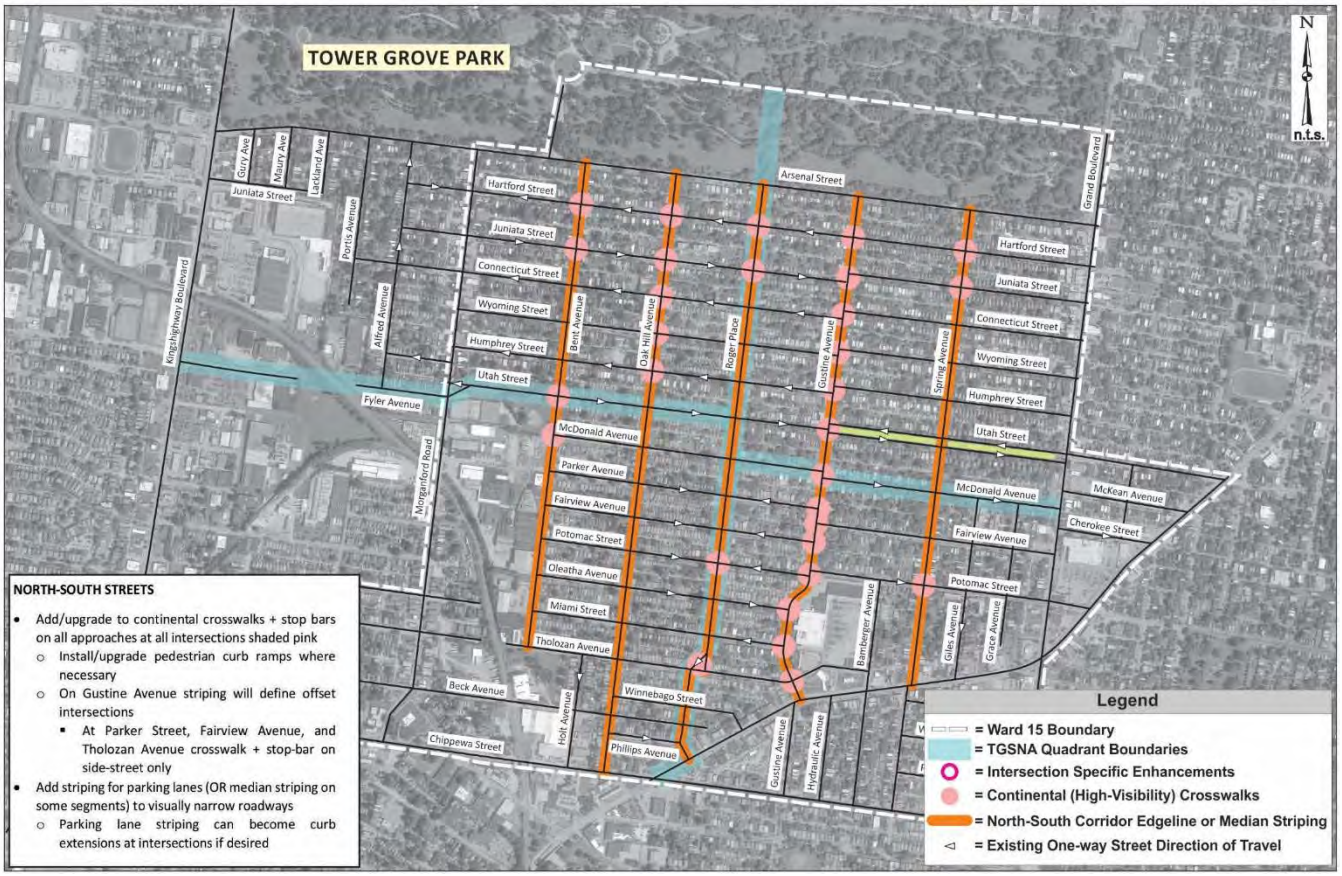


Figure 19: North-South Corridors

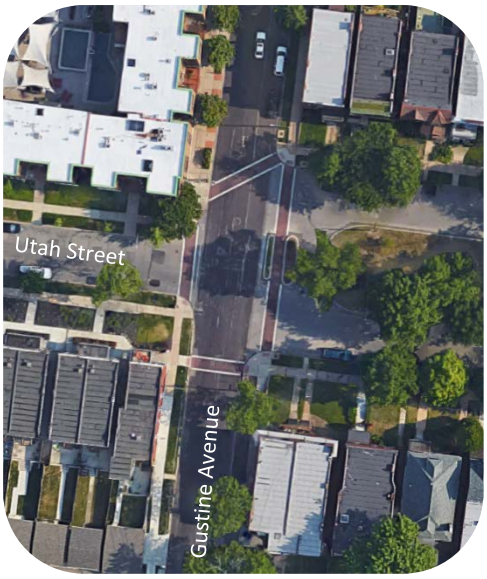
Table 20: North-South Corridors Conceptual Cost Estimate

Item	Conceptual Costs
Gustine crosswalks	$ 25,000
Gustine edgelines	$ 10,000
Gustine curb ramps	$ 25,000
Gustine TOTAL	**$ 60,000**
Additional intersections crosswalks (each)	$ 2,500
Edgelines (per corridor)	$ 10,000

Crosswalks and Stop-Bar Striping

The intersections of Gustine Avenue and many of its cross-streets are offset, a situation that can be confusing for users and can negatively impact safety, especially for pedestrians. In fact, multiple intersections within this corridor were noted as areas of concern during the Public Meeting and Neighborhood Survey. Therefore, it is recommended that continental crosswalks and stop-bar markings be installed across all approaches of several of the Gustine Avenue intersections – with the goals of indicating/reinforcing the linkages, improving the visibility of pedestrians, and breaking up the drivers' vista to slow vehicular speeds. The crossings would be installed at the following intersections in a manner similar to the existing markings at the intersection of Gustine Avenue and Utah Street, as shown in **Figures 19 – 22**:

- Hartford Street (TWSC)
- Juniata Street (TWSC), critical location per survey (will require two new curb ramps)
- Connecticut Street (TWSC)
- Wyoming Street (TWSC)
- Humphrey Street (TWSC)
- Utah Street (AWSC) (this location has textured pavement crosswalks installed, but their striping should be refreshed, if necessary, and stop-bars added)
- McDonald Avenue (TWSC)
- Parker Street* (TWSC)
- Fairview Avenue* (TWSC)
- Potomac Street (AWSC)
- Oleatha Avenue (TWSC) (will require two new curb ramps installed on east side of Gustine)
- Miami Street (TWSC) (will require two new curb ramps installed on east side of Gustine)
- Tholozan Avenue* (TWSC) (will require two new curb ramps installed on Tholozan)



Existing Intersection of Gustine Avenue and Utah Street

* these streets would have crosswalks marked on the side-street approach only

In addition, there are a number of other intersections where crosswalk markings would be encouraged in the future, as funding becomes is available, due to various reasons including: resident concerns, geometry, nearby land uses, and the proximity to arterial corridors. These intersections are listed below.

- Spring Avenue at:
  - Hartford Street (AWSC)
  - Juniata Street (AWSC)
  - Utah Street (AWSC)
  - Potomac Street (AWSC)
- Roger Place at:
  - Hartford Street (TWSC)
  - Juniata Street (AWSC)
  - Potomac Street (TWSC)
  - Tholozan Avenue (AWSC)
- Oak Hill Avenue at:
  - Hartford Street (TWSC)
  - Juniata Street (AWSC)
  - Connecticut Street (TWSC)
  - Wyoming Street (AWSC)
  - Humphrey Street (TWSC)
- Bent Avenue
  - Hartford Street (AWSC)
  - Juniata Street (AWSC)
  - Utah Street (AWSC)
  - McDonald Avenue (TWSC)

Lane Striping

In addition to highlighting the offset connections and pedestrian crossings in these corridors, it could also be beneficial to visually narrow portions of these streets to encourage slower traffic speeds. As shown in **Table 21**, the north-south streets are 30-feet or 36-feet wide. Longitudinal striping can be installed to visually narrow these streets in one of two ways: white edgeline striping (10-feet from the center of the roadway on each side) on the 36-foot wide streets or painted medians in the center of the roadway (of nearly any width depending on the width of the roadway). Where on-street parking is utilized, the preferred strategy would be edgeline striping; unless the community prefers to install painted medians (for example, as a type of community gateway).

Example of Median and Edgeline Striping

Table 21 – North-South Corridors Street Widths

Street Name	*Street Width(s) (ft)*
Spring Avenue	36
Gustine Avenue	36 30 south of Utah
Roger Place	36 30 south of Parker
Oak Hill Avenue	30
Bent Avenue	36 30 south of Hartford

Figures 20-23 are conceptual drawings of how the edgeline striping, continental crosswalks, and painted curb extensions would look at some of the Gustine Avenue intersections.

Figure 20: Continental Crosswalks and Edgeline Striping at Intersection of Gustine & Hartford

Figure 21: Continental Crosswalks and Edgeline Striping (with Curb Bulbs) at Intersection of Gustine & Juniata

Figure 22: Continental Crosswalks and Edgeline Striping at Intersection of Gustine & Wyoming

Figure 23: Continental Crosswalks and Edgeline Striping (with Curb Bulbs) at Intersection of Gustine & Humphrey

Arsenal Street / Pedestrian Connections to Tower Grove Park

Many residents indicated on the survey they want to have better access to Tower Grove Park. Recommendations for the Arsenal Street Corridor are shown in **Figure 24** and discussed in the following section; a summary of conceptual costs is shown in **Table 22**.

It should be noted the City of St. Louis was awarded a Transportation Alternative Program (TAP) grant in January, 2016, to improve the alternative transportation connections between the Park and surrounding neighborhoods. Some of the recommendations made as part of this Ward 15 study could potentially be addressed during that project.

Table 22: Arsenal Street Corridor Conceptual Cost Estimate

Item	Conceptual Costs
Striping (crosswalks/stop-bars/curb bulbs)	$ 25,000
New curb ramps	$ 50,000
Center Cross Drive Intersection Upgraded signals Roundabout	 $ 200,000 $ 450,000
Gustine Signalization	$ 200,000
Signage	$ 1,000
TOTAL	**$ 476,000 - $726,000**
*does not include decorative paint treatments	

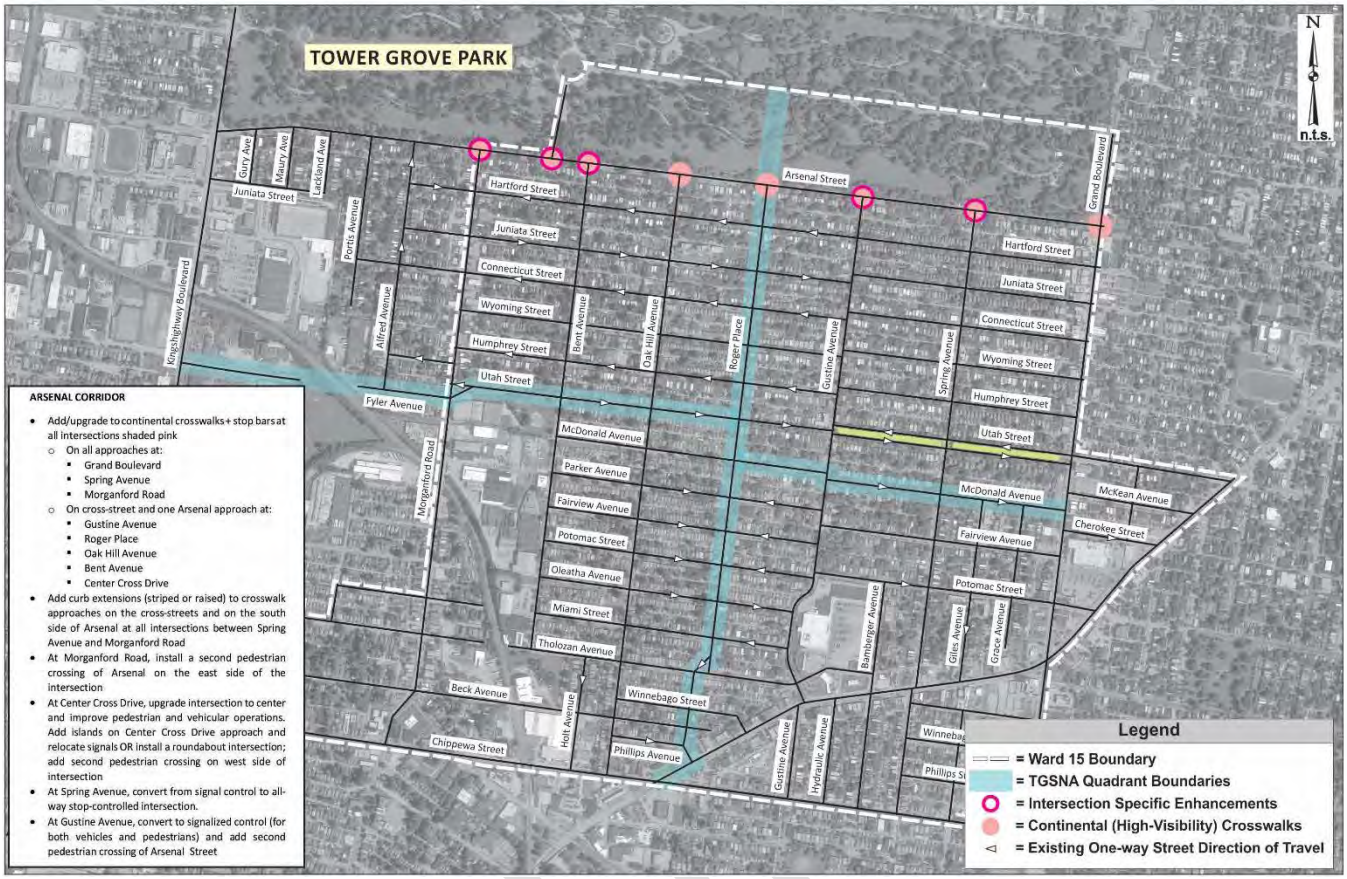


Figure 24: Arsenal Street Corridor Recommendations

Crosswalks and Stop-Bar Striping

It is recommended that continental crosswalks and vehicle stop-bars be installed or upgraded on Arsenal between Grand and Kingshighway Boulevards (although only the segment within Ward 15 will be addressed in this document). Although a few intersections have one or more marked crosswalks, they are often the parallel-line style, which is less visible travelers. This recommendation is intended to:

- ❖ increase pedestrian safety by promoting awareness of pedestrian corridors and defining the pedestrian "zones" within the street,
- ❖ function (to some degree) as a neighborhood gateway, demarking the point where travelers are entering the Tower Grove South Neighborhood residential area
- ❖ break up the drivers' vista and add (passive) activity to the street to encourage slower speeds.

The following intersections are identified within the Arsenal Street corridor as high-priority locations for crosswalk and stop-bar installation within Ward 15:

- Grand Boulevard (SIGNAL = signalized intersection)
- Spring Avenue (SIGNAL), (will require construction of a new curb ramp on the north side of Arsenal Street)
- Gustine Avenue* (AWSC = all-way stop controlled intersection)
- Roger Place* (AWSC)
- Oak Hill Avenue* (AWSC)
- Bent Avenue* (TWSC = two-way or minor-street stop control),(will require the construction of a curb ramp on the north side of Arsenal Street
- Center Cross Drive* (SIGNAL)
- Morganford Road (SIGNAL)

*at these locations there is only one marked crosswalk on Arsenal

It is additionally recommended that striped curb extensions (or curb bulbs or bump-outs) be installed on the south side of the intersections. These curb extensions would make pedestrians waiting to cross more visible to drivers and cyclists and would reduce the crossing distance for pedestrians. The curb extensions would utilize the curbside (parking lane) space at the intersections and would be similar to the vertical (landscaped) curb extensions installed on Grand Boulevard as part of the streetscape project, but (as painted installations) can be installed for lower costs, schedule time, and intrusion than the vertical (raised) curbs. The design of these features can be tailored to the needs and preferences of the neighborhood (as shown below). Curb extensions are recommended for the following intersections of Arsenal Street:

- Spring Avenue
- Gustine Avenue
- Roger Place
- Oak Hill Avenue
- Bent Avenue
- Center Cross Drive
- Morganford Road

Example of Painted Curb Extension

Example of Painted Curb Extension

It is recommended that thermoplastic striping be utilized for the pavement markings. Thermoplastic striping offers greater visibility, especially in dark and/or wet conditions, and typically lasts longer than paint applications.

Intersection-Specific Improvements

Geometric and/or signal improvements are also recommended for some of the Arsenal Street intersections in the study area. Again, some of these improvements may be included in the Tower Grove TAP project. These intersections are discussed below.

Morganford Road is a major pedestrian corridor, a cycling corridor, and one of the primary neighborhood access points for Tower Grove Park. However, there is only one marked crosswalk across Arsenal Street, and it happens to be the crossing that is further from the Park entry path. It is recommended that a second crosswalk be installed on Arsenal Street at Morganford Road. In addition to new pavement markings, the additional ramp will require two new accessible curb ramps and new signal equipment and phasing.

The large, flared, approach of Center Cross Drive creates a difficult situation for pedestrians and traffic control at Arsenal Street. Although Center Cross Drive is nearly 200-feet across at Arsenal Street, there is no marked pedestrian crossing of that roadway and only a single marked crossing of Arsenal Street (although Tower Grove Park paths can be accessed at either side). In addition, the existing signal equipment is outdates and is located such that it can be difficult for drivers to see, especially westbound traffic. The current situation also makes traffic control difficult at Bent Avenue, which is less than 200-feet from the signalized pedestrian crossing at Center Cross Drive.

Therefore, it is recommended that this intersection be reconstructed to provide better vehicular control and pedestrian accommodations. One way this can be done is by reconstructing the existing signalized intersection. The proposed improvements would include pedestrian refuge islands, additional crosswalks, and enhanced signals as shown in **Figure 25**.

A second option for reconfiguration would be to construct a roundabout at the intersection; as shown in **Figure 26**. Although the construction of a roundabout is a more expensive alternative, a roundabout could provide additional traffic calming benefits, would not require signal equipment, would make it easier to add stop-control on Arsenal at Bent Avenue (if desired), and would create a gateway to Tower Grove Park.

Figure 25: Existing Intersections of Arsenal Street at Center Cross Drive

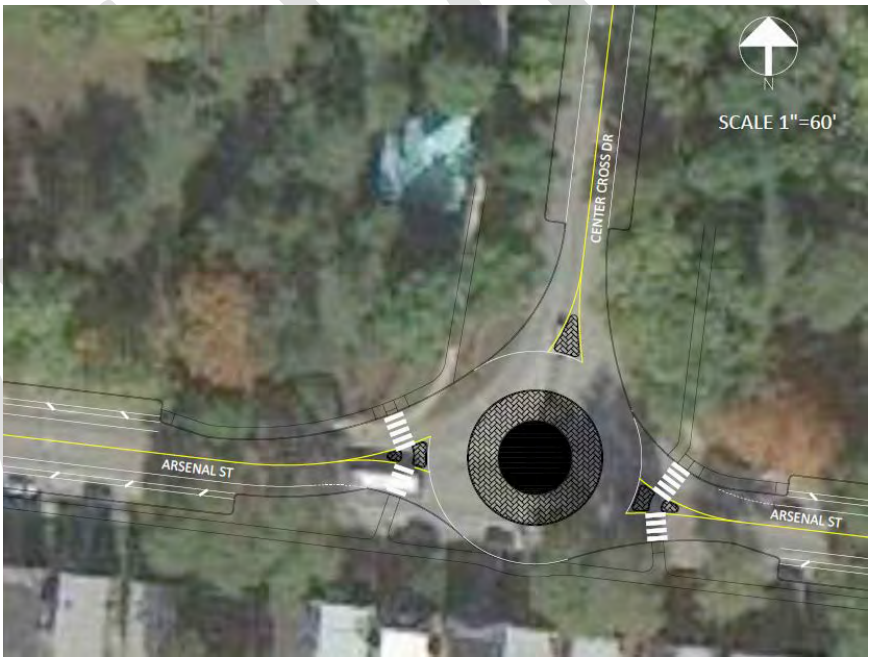


Figure 26: Roundabout Intersection Concept for Arsenal Street at Center Cross Drive

Spring and Gustine Avenues: There was a volume of neighborhood concerns over traffic operations on Gustine Avenue, with several residents noting that the signal at Spring Avenue would make more sense at Gustine Avenue. In addition, field counts detected higher vehicular and pedestrian volumes on Gustine Avenue. At Spring Avenue, some of the signal equipment is older; there are pedestrian signals for the two Arsenal Street crosswalks, but not for the minor street. It is, therefore, recommended that instead of any future upgrades to the signal equipment at Spring Avenue, that intersection should be converted to an all-way-stop-control (AWSC) and a signal should be installed instead at the intersection of Gustine Avenue and Arsenal Street. At that time, a second marked crosswalk should be installed at Gustine Avenue and both pedestrian crossings should be signalized. This relocation would also provide better spacing of the signalized intersections on Arsenal Street between Grand and Kingshighway Boulevards.

It is also noted that the intersection of Bent Avenue is the only intersection within this (study) corridor that is uncontrolled (via stop-signs or signals) on the Arsenal Street approaches. The situation is likely due to the proximity of the Center Cross Drive intersection and the potential to back traffic up between and/or through these intersections. However, there is a pedestrian path connection in Tower Grove Park and a MetroBus stop on Arsenal Street opposite Bent Avenue. Therefore, the location should be monitored for future concerns of pedestrians trying to cross Arsenal Street. The proposed improvements at the adjacent Center Cross Drive should provide an attractive alternative crossing of Arsenal Street during heavy vehicular traffic periods, but pedestrians may not choose to extend their paths (especially transit patrons on a schedule). Future pedestrian enhancements at this location will depend on the ultimate configuration of the adjacent intersection at Center Cross Drive.

Morganford Road Corridor

Morganford Road is also a significant pedestrian corridor within Ward 15 and is a destination for neighborhood residents and visitors. The survey feedback and field investigation noted several concerns on Morganford Road including safety, sight distance, and pedestrian issues. Two particular intersections of concern were Hartford and Wyoming Streets. Morganford Road is approximately 44-feet wide and is currently striped as four, 11-foot wide lanes; parking is generally permitted along the curb and, where utilized, narrows the perceived roadway – however the intersections remain very wide. The intersections are currently all stop-controlled with the majority being all-way stops, the exceptions are side-street stops (only) at Hartford Street, Humphrey Street, and the (smaller) one-way connection of Utah Street. Recommendations for the Morganford Road Corridor are shown in **Figure 27** and discussed in the following section; a summary of conceptual costs is shown in **Table 23**.

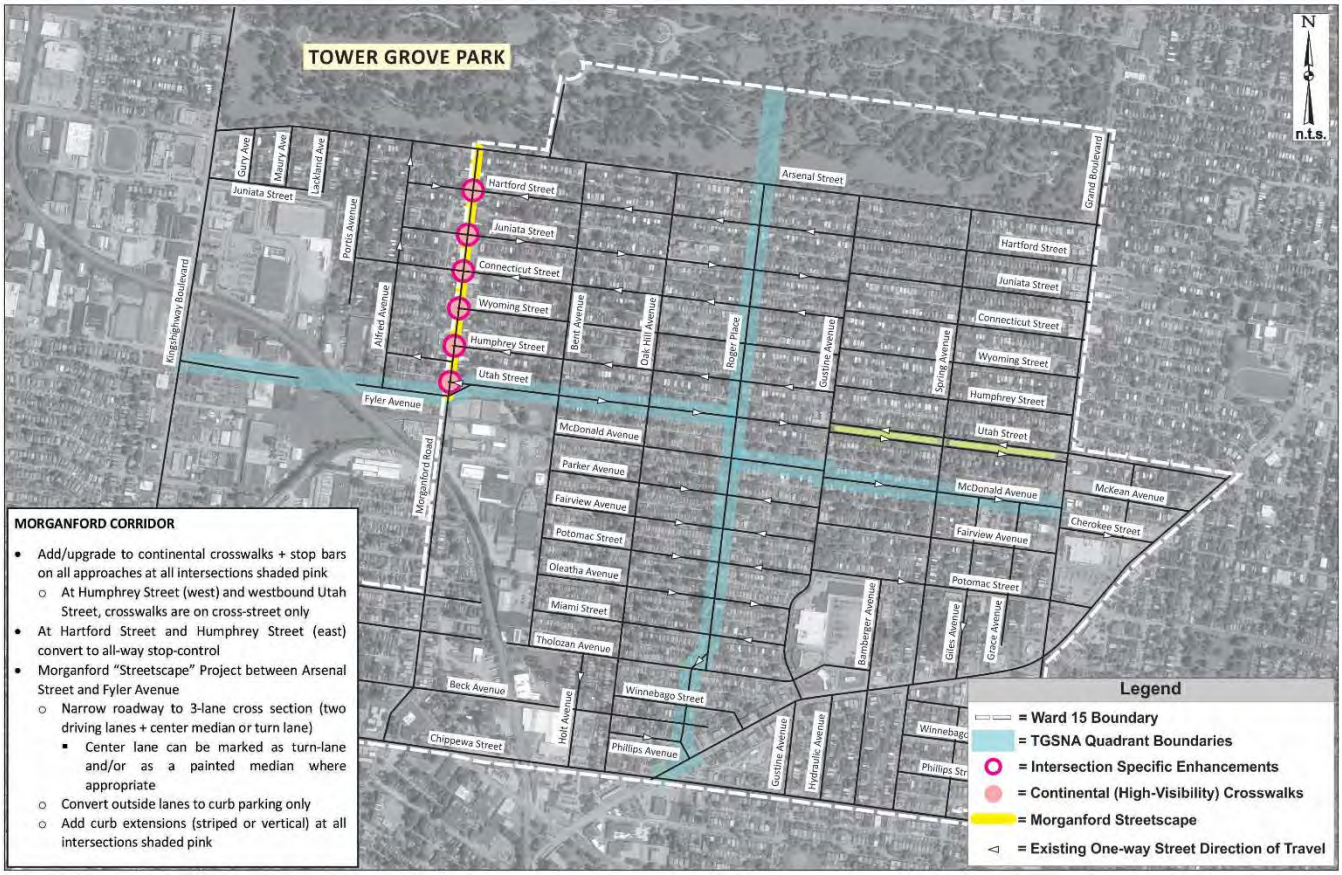


Figure 27: Morganford Road Corridor Recommendations

Table 23: Morganford Road Corridor Conceptual Cost Estimate

Item	Conceptual Costs
Striping (crosswalks/stop-bars/curb bulbs)*	$ 15,000
Streetscape striping	$ 15,000
New curb ramps	$ 50,000
Signage	$ 500
TOTAL	**$ 80,500**
*does not include decorative paint treatments	

Morganford Road Diet

A road diet project is recommended for Morganford Road; a cross-section and pedestrian accommodations similar to South Grand Boulevard would be ideal for the Morganford commercial district between Arsenal Street and Fyler Avenue. The proposed cross section is two, 10-foot shared bicycle/vehicle lanes and two, 8-foot curbside parking lanes with an 8-foot median or two-way-left-turn-lane. Continental crosswalks, stop-bars, and curb extensions should be installed at every intersection within this corridor. The enhanced Morganford corridor, like the Grand Boulevard and (proposed) Arsenal Street corridors, will act as a gateway to the Tower Grove South Neighborhood.

Example of Painted Streetscape Intersection

The narrowed roadway will slow vehicular traffic and make the corridor safer and more comfortable for pedestrians. Shorter, more visible crossings will improve pedestrian safety at all intersections and increase the (passive) activity in the corridor, further slowing traffic. All of the major intersections would be striped with high-visibility continental crosswalks, stop bars, and curb extensions on all approaches (with the exception of the west approach of Humphrey Street and the smaller one-way approach of Utah Street, which would only have crosswalks across the side street and not across Morganford Road). Painting the curb extensions would reduce the cost, time, and disruption of a vertical installation and would also provide an opportunity to showcase the color and character of the surrounding neighborhood.

Decorative Painted Median

The sharrows, marking Morganford Road as a shared bike facility, should remain in the two travel lanes. The parking lanes would be indicated with striping. The center turn-lane can be marked as a TWLTL (as with Grand Boulevard) or possibly a painted decorative median in the mid-block segments with turn-bays at the intersection approaches. It should be noted that the design of any painted medians or curb extensions would need to be coordinated with, and approved by, the City of St. Louis Streets Department. If it is desired in the future, raised curb extensions or median segments could be installed in place of the painted improvements.

It is also recommended that the two Morganford Road intersections within this segment that are not all-way-stop-control be converted to all-way stops. These are the

intersections of: Morganford Road at Hartford Street and Morganford Road at Humphrey Street (the east approach). This change, especially in concert with the new crosswalks and curb extensions, will improve pedestrian safety at these locations and, due to their locations north and south limits of the proposed streetscape, will reinforce to drivers that they are entering a pedestrian-oriented corridor.

Grand Boulevard Corridor

Although the intent of the study was to focus within the neighborhood and not on the major arterials, several survey and neighborhood comments, as well as field observations noted pedestrian concerns within the Grand Boulevard corridor. Recommendations for the corridor are shown in **Figure 28** and discussed in the following section; a summary of conceptual costs is shown in **Table 24**.

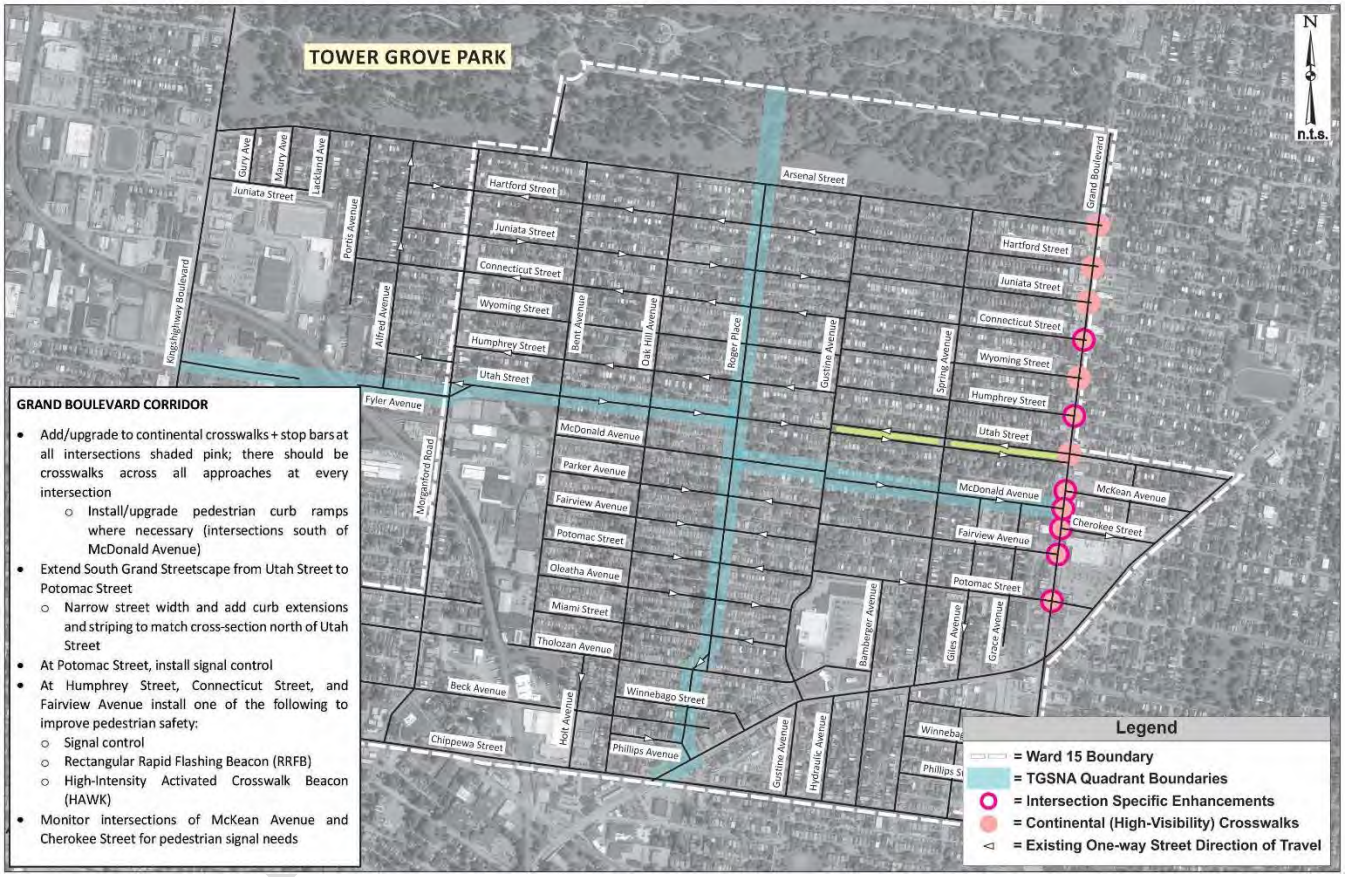


Figure 28: Grand Boulevard Corridor Recommendations

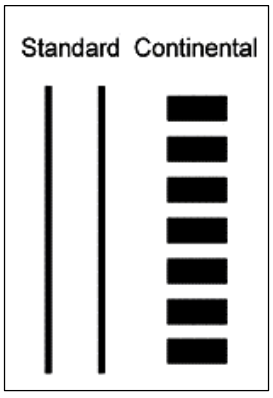
Table 24: Grand Boulevard Corridor Conceptual Cost Estimate

Item	Conceptual Costs
Striping (crosswalks/stop-bars)	$ 25,000
New curb ramps	$ 30,000
Streetscape striping	$ 8,000
Raised curb bulbs	$ 750,000
Connecticut Street Intersection Traditional signal HAWK RRFB	 $ 200,000 $ 100,000 $ 8,000
Humphrey Street Intersection Traditional signal HAWK RRFB	 $ 200,000 $ 100,000 $ 8,000
McDonald Avenue signal changes	$ 50,000
Fairview Avenue Intersection Traditional signal HAWK RRFB	 $ 200,000 $ 100,000 $ 8,000
Potomac Street signal	$ 200,000
TOTAL	**$1,663,000 - $1,087,000**

Crosswalks and Stop-Bar Striping

It is recommended that continental crosswalks and vehicle stop-bars be installed or upgraded throughout the formely "streetscaped" segment of Grand Boulevard, this includes the following intersections:

- Hartford Street (SIGNAL)
- Juniata Street (SIGNAL)
- Connecticut Street (TWSC)
- Wyoming Street (SIGNAL)
- Humphrey Street (TWSC)
- Utah Street (SIGNAL)



Crosswalk Comparison

Although there are crosswalks at these intersections, they are the traditional "parallel" crossings often without marked stop bars. Repainting the crosswalks with continental striping will improve the visibility of the crosswalks and the pedestrian "zones" of the street. It it further recommended that thermoplastic striping be utilized for the pavement markings. Thermoplastic striping offers greater visibility, especially in dark and/or wet conditions, and typically lasts longer than paint applications.

Intersection-Specific Improvements

Concerns about the ability of pedestrians to cross Grand Boulevard were noted at the intersections of Grand Boulevard with Humphrey and Connecticut Streets. These intersections have pedestrian enhancements including curb extensions and marked crosswalks. However, the intersections are two-way-stop-controlled (only the cross-streets have stop signs and stop-bars before the crosswalks, Grand Boulevard does not stop) and pedestrians have difficulty finding adequate gaps to cross the street and/or encouraging vehicles to yield for pedestrians in the roadway. Previously, stop for pedestrian signage was been installed in the roadway on flexible bollards and, though they generally worked at stopping traffic, they were quickly destroyed by trucks traffic turning at the intersection.

It is recommended that some kind of pedestrian-actuated crossing be installed at these locations. This treatment can be achieved in one of several ways: installing signal control at these locations (timed in progression with the surrounding signals), installing "RRFB" signage or installing a "HAWK" signal. The choice would depend upon the preference of area stakeholders (including the City of St. Louis).

A signalized intersection would be the most consistent for users in the corridor. The signal would mimic other intersections in the corridor and include pedestrian signal heads. Vehicular traffic would be stopped in coordination with the surrounding signals, minimizing driver delay and frustration. Pedestrians would know that they have a dedicated crossing cycle, but may need to wait for that opportunity upon arriving at the intersection. However, intersection signalization is the highest-cost option and may be excessive for the number of pedestrians needing support.

Example of RRFB Installation in Use

A less-costly installation that still greatly benefits pedestrians is a Rectangular Rapid Flashing Beacon (RRFB). This device is activated by a pedestrian wishing to cross (it is activated by a push-button similar to a traditional pedestrian signals). Flashing lights mounted on pedestrian crossing signs indicate to motorists a pedestrian is entering or within the roadway. The lights flash for a predetermined amount of time (calculated to accommodate a complete crossing) signaling drivers to yield for pedestrians.

If overhead indications are preferred, a HAWK signal (High-Intensity Activated crosswalk beacon) could be installed. HAWK signals are overhead signals installed for pedestrian crossings and not for vehicular traffic operations. The signal is only active when actuated by a pedestrian (with a push-button as with traditional pedestrian signals or RRFBs). HAWK signals are frequently located in On Grand Boulevard, a HAWK signal would need to be connected to, and coordinate with, the up- and downstream signals.

Example of HAWK Signal in Use

Another specific area of concern noted through the survey and in field observations is Grand Boulevard near Fairview Avenue. There is significant pedestrian traffic in the area due to the Schuck's Market and the MetroBus stops for both northbound and southbound Route #70, yet it is a roadway for pedestrians to maneuver. Within this segment, Grand Boulevard is five lanes wide (two lanes for each direction with a center two-way-left-turn-lane) and pedestrians are frequently observed crossing the street mid-block. The wide street width and lack of pedestrian facilities are especially apparent given the more pedestrian-friendly design of the roadway north of this segment. Therefore, it is recommended that the South Grand streetscape be extended from Utah Street to south of Potomac Street. The proposed cross-section and pedestrian enhancements (curb extensions, continental crosswalks, and stop bars) would match Grand Boulevard north of Utah Street As in the segment to the north, the narrowed roadway and pedestrian-focused enhancements will slow vehicular traffic and increase pedestrian safety. (Additionally, the South Grand CID has seen a major boost in economic activity since the completion of the current road diet that could be extended given the current land use in the segment south of Utah Street.)

South Grand Road Diet Curb Extension

The segment south of Utah Street currently has one signalized intersection at McDonald Avenue (proposed to change from one-way eastbound to a two-way street). In addition, there are non-signalized intersections at McKean Avenue, Cherokee Street (one-way eastbound), Fairview Avenue and Potomac Street; all but Potomac tee in to Grand Boulevard. It is recommended that the intersection of Grand Boulevard and Potomac Street be signalized (vehicular and pedestrian) with crosswalks and stop-bars on all approaches. Pedestrian accommodations at McKean, Cherokee and Fairview should include a single crosswalk across Grand Boulevard in addition to the side street. However, it may still be difficult to find gaps in the traffic to complete crossing movements on foot, as with the existing intersections at Humphrey and Connecticut

Streets. The pedestrian signalization (traditional signal, RRFB or HAWK) chosen for those two intersections should be considered for the intersection of Grand Boulevard and Fairview Avenue.

Appendices

Appendix A: Survey

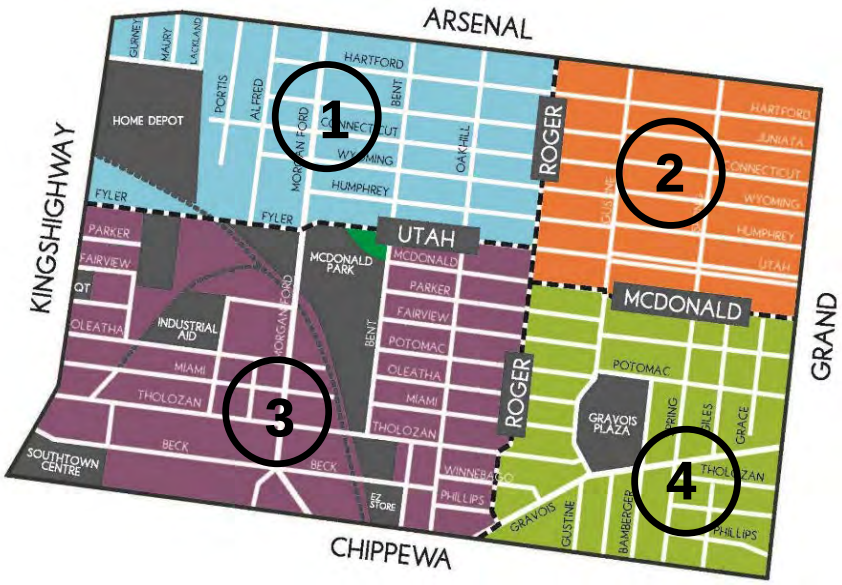
You are invited to participate in a neighborhood access and circulation study for Ward 15. The goal of this is to use your feedback for a current study to enhance traffic and pedestrian safety within the Tower Grove South Neighborhood. In this survey, you will be asked about your current experiences within the neighborhood, and how you'd like to see it change in the future. Your participation in this survey is greatly appreciated and will have an important impact on the future of the Tower Grove South Neighborhood. Your responses will be kept confidential.

For more information about the project, as well as details on how to get involved, visit https://www.facebook.com/tgsna?fref=ts. If you have any questions about this survey, please contact Alderwoman Green with the City at green@stlouis-mo.gov.

1. Do you live or own a business in Tower Grove South?
    a. Live
    b. Own a business
    c. Both

2. If you live in Tower Grove South, do you rent or own?
    a. Rent
    b. Own
    c. N/A

3. Where do you live/and or own a business within the Tower Grove South Neighborhood?
    a. Northwest Quadrant (1)
    b. Northeast Quadrant (2)
    c. Southeast Quadrant (3)
    d. Southwest Quadrant (4)



4. What is your age?
    a. 15 – 19
    b. 20 – 29
    c. 30 – 39
    d. 40 – 49
    e. 50 – 59
    f. 60 – 69
    g. 70 or greater

5. Do you have children under the age of 18 that live in your household?
    a. Yes, I have children under the age of 18 in my household
    b. No, I do not have children under the age of 18 in my household

6. How would you describe the 'atmosphere' of your neighborhood?
    a. Well kept
    b. Mediocre
    c. Run down
    d. Other: _____

7. Please indicate the concerns you have for the Tower Grove South Neighborhood.

	Very Concerned	Somewhat Concerned	Not Concerned	N/A
Bicycle Lanes				
Parking				
Pedestrian Safety				
Roads				
Sidewalks				
Speeding				
Street Lighting				
Traffic				
Unkept Properties				

8. Please indicate your experience driving within the neighborhood

	Above Average	Average	Below Average	N/A
Most motorists obey traffic rules within the neighborhood				
Signage is easy to understand and helps to guide you through the neigborhood safely				
Traffic circulates efficiently				
I feel safe driving on the streets within the neighborhood				

9. Please indicate your experience biking within the neighborhood

	Above Average	Average	Below Average	N/A
Most bicyclists obey traffic rules within the neighborhood				
Signage is easy to understand and helps to guide you through the neigborhood safely				
Bike lanes are clearly marked and provide a connected path throughout the neighborhood				
I feel safe biking on the streets within the neighborhood				

10. Please indicate your experience walking within the neighborhood

	Above Average	Average	Below Average	N/A
Pedestrians follow typical rules, such as crossing at designated crosswalks				
Signage is easy to understand and helps to guide you through the neigborhood safely				
Crosswalks are clearly marked and sidewalks provide a well connected path throughout the neighborhood				
I feel safe walking in my neighborhood				

11. Please indicate the importance of each of these below.

	Important	Somewhat Important	Not Important	N/A
Bicyle Lanes				
Congestion				
One-way Street Location				
One-way Street Direction				
Park Maintenance				
Parking				
Sidewalks				
Signage				
Speed Limit				
Street Lighting				
Stop Sign Location				
Traffic Flow				

12. Please indicate which traffic calming measures you would be interested in seeing implemented in your neighborhood

	Interested	Somewhat Interested	Not Interested	N/A
Speed Humps				
Roundabouts				
Chokers				
Dividers				
Bumpouts				
Speed Tables				
Stop Signs				
One-way direction change				

13. Are there specific intersections or streets you would like to see addressed? Please indicate those areas and issues you see currently at the location(s).

14. Do you have any other comments or suggestions for this study in Tower Grove South? Other:

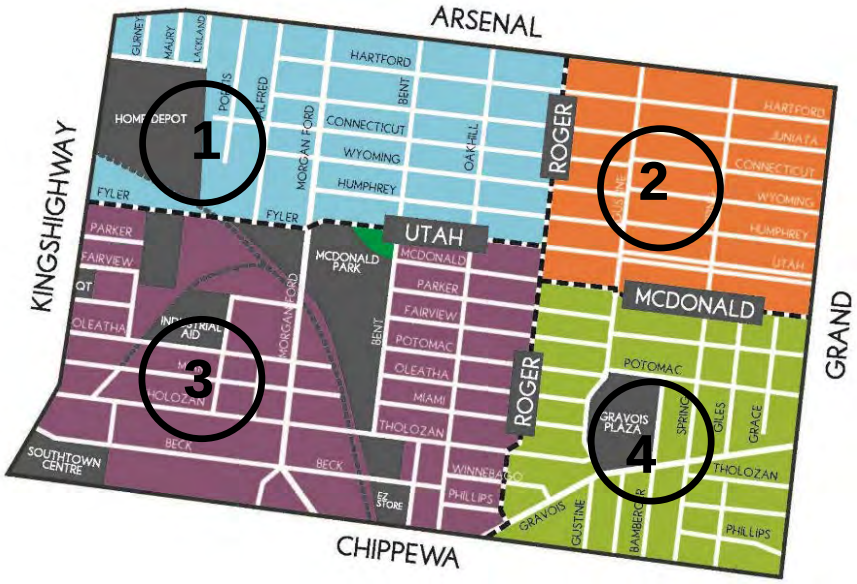
Thanks for your time! Your input has been extremely important to us. Be sure to check in for more updates and information about the study.

Appendix B: Survey Responses

You are invited to participate in a neighborhood access and circulation study for Ward 15. The goal of this is to use your feedback for a current study to enhance traffic and pedestrian safety within the Tower Grove South Neighborhood. In this survey, you will be asked about your current experiences within the neighborhood, and how you'd like to see it change in the future. Your participation in this survey is greatly appreciated and will have an important impact on the future of the Tower Grove South Neighborhood. Your responses will be kept confidential.

For more information about the project, as well as details on how to get involved, visit https://www.facebook.com/tgsna?fref=ts. If you have any questions about this survey, please contact Alderwoman Green with the City at green@stlouis-mo.gov.

1. Do you live or own a business in Tower Grove South?
   - **a. Live – 92 %**
   - **b.** Own a business – **2 %**
   - c. Both – **6 %**
2. If you live in Tower Grove South, do you rent or own?
   - **a.** Rent – **21%**
   - **b. Own – 79%**
   - c. N/A
3. Where do you live/and or own a business within the Tower Grove South Neighborhood?
   - a. Northwest Quadrant (1) – **27%**
   - **b. Northeast Quadrant (2) – 48%**
   - c. Southeast Quadrant (3) – **15%**
   - **d.** Southwest Quadrant (4) – **10%**



4. What is your age?
   a. 15 – 19
   b. 20 – 29 – **14%**
   c. 30 – 39 – 30%
   d. 40 – 49 – **21%**
   e. 50 – 59 – **21%**
   f. 60 – 69 – **12%**
   g. 70 or greater – **2%**

5. Do you have children under the age of 18 that live in your household?
   a. Yes, I have children under the age of 18 in my household – **32%**
   b. No, I do not have children under the age of 18 in my household – 68%

6. How would you describe the 'atmosphere' of your neighborhood?
   a. Well kept – 66%
   b. Mediocre – **25%**
   c. Run down – **1%**
   d. Other: _____ (**8%**) **comments at end of survey*

7. Please indicate the concerns you have for the Tower Grove South Neighborhood.

	Very Concerned	Somewhat Concerned	Not Concerned	N/A
Bicycle Lanes	28%	**38%**	33%	2%
Parking	13%	32%	**54%**	2%
Pedestrian Safety	**60%**	28%	12%	0
Roads	23%	**50%**	28%	0
Sidewalks	37%	**44%**	18%	0
Speeding	**65%**	26%	9%	0
Street Lighting	35%	**42%**	23%	0
Traffic	33%	**41%**	26%	0
Unkept Properties	40%	**44%**	16%	0

8. Please indicate your experience driving within the neighborhood

	Above Average	Average	Below Average	N/A
Most motorists obey traffic rules within the neighborhood	7%	45%	**48%**	0
Signage is easy to understand and helps to guide you through the neigborhood safely	16%	**72%**	11%	1%
Traffic circulates efficiently	13%	**60%**	27%	0
I feel safe driving on the streets within the neighborhood	24%	**59%**	16%	0

9. Please indicate your experience biking within the neighborhood

	Above Average	Average	Below Average	N/A
Most bicyclists obey traffic rules within the neighborhood	9%	**47%**	32%	11%
Signage is easy to understand and helps to guide you through the neigborhood safely	11%	**58%**	12%	18%
Bike lanes are clearly marked and provide a connected path throughout the neighborhood	22%	**34%**	26%	17%
I feel safe biking on the streets within the neighborhood	11%	**39%**	21%	29%

10. Please indicate your experience walking within the neighborhood

	Above Average	Average	Below Average	N/A
Pedestrians follow typical rules, such as crossing at designated crosswalks	21%	**59%**	18%	2%
Signage is easy to understand and helps to guide you through the neigborhood safely	18%	**68%**	9%	5%
Crosswalks are clearly marked and sidewalks provide a well connected path throughout the neighborhood	24%	**50%**	23%	3%
I feel safe walking in my neighborhood	18%	**53%**	28%	2%

11. Please indicate the importance of each of these below.

	Important	Somewhat Important	Not Important	N/A
Bicyle Lanes	**45%**	33%	21%	1%
Congestion	37%	**40%**	23%	0
One-way Street Location	29%	**39%**	29%	2%
One-way Street Direction	29%	**39%**	30%	2%
Park Maintenance	**76%**	20%	3%	0
Parking	36%	**43%**	10%	1%
Sidewalks	**68%**	28%	4%	0
Signage	38%	**50%**	13%	0
Speed Limit	**62%**	32%	6%	0
Street Lighting	62%	**32%**	6%	0
Stop Sign Location	**57%**	37%	6%	0
Traffic Flow	**51%**	40%	8%	0

12. Please indicate which traffic calming measures you would be interested in seeing implemented in your neighborhood

	Interested	Somewhat Interested	Not Interested	N/A
Speed Humps	27%	22%	**50%**	0
Roundabouts	33%	26%	**40%**	2%
Chokers	24%	24%	**46%**	6%
Dividers	16%	34%	**45%**	4%
Bumpouts	26%	28%	**41%**	5%
Speed Tables	31%	31%	31%	7%
Stop Signs	26%	30%	**42%**	2%
One-way direction change	17%	28%	**53%**	2%

13. Are there specific intersections or streets you would like to see addressed? Please indicate those areas and issues you see currently at the location(s).

Attachment B

14. Do you have any other comments or suggestions for this study in Tower Grove South? Other:

Attachment C

Thanks for your time! Your input has been extremely important to us. Be sure to check in for more updates and information about the study.

Question Comments:

6. How would you describe the 'atmosphere' of your neighborhood?
    - Block-to-block hit-and-miss
    - Improving
    - Poor but proud
    - Mixed
    - Average: Better kept than Dutchtown, but not as well kept as Shaw
    - Somewhere b/w the first two--varies by block and within blocks everywhere except Utah Place.
    - Great - except the "marches" that our alderperson brings to our neighborhood - blocks our streets and doesn't inform the neighbors. She marches to HER OWN agenda.
    - Unwelcoming
    - Fairly well kept with random eye sores for property and yard maintenance. Litter from outsiders.
    - Well-kept with a few eye sores, mainly yard maintenance issues
    - Nice with a few rough patches
    - Mostly well kept
    - On the uptick. Let's get this trash issue cleaned up.
    - variable and improving every day
    - Generally well kept but one house deliberately left to rot
    - Between mediocre & well-kept; depends on the block
    - Needs litter picked up
    - A mixture of well-kept and mediocre
    - improving, pretty, friendly
    - up and coming
    - Spotty
    - Changing

Appendix C: Survey Summary Memo

Memorandum

October 26, 2015

City of St. Louis Board of Public Service
RE: Ward 15 Traffic Study: Task 1.3 Deliverable – Resident Survey Summary

In conjunction with Alderwoman Megan Green, the City of St. Louis Street Department and various neighborhood representatives, CBB developed a survey to be distributed online (http://www.questionpro.co/t/ALWvDZS6sv).

The survey link was distributed widely on door hangers advertising the public meeting (October 5 at the Carpenter Branch Library). A few residents took the survey at the public meeting. The survey officially closed on Monday, October 19, 2015. To date 277 respondents have completed the survey.

Attachment A of this summary is a copy of the survey with the percent responses to each question (rounded to the nearest whole percentage). Attachment B includes the entire list comments on specific intersections of interest or concern. Attachment C includes the entire list of general comments about the survey and other ideas for traffic related issues in the neighborhood.

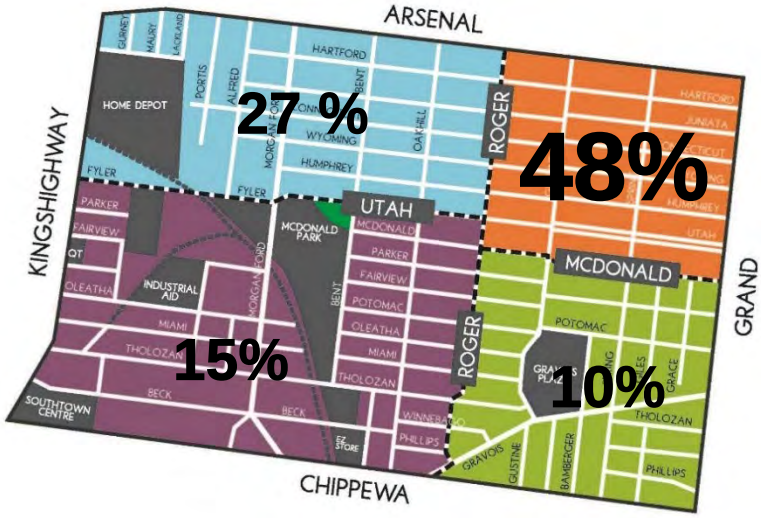
Below you will find a summary of the most defining points of the survey responses. These highlight overarching themes found in the answers and comments, as well as feedback from the first public meeting. Taking these ideas into consideration when identifying high priority areas and traffic calming measures will be crucial next steps in the planning process.

Survey Summary

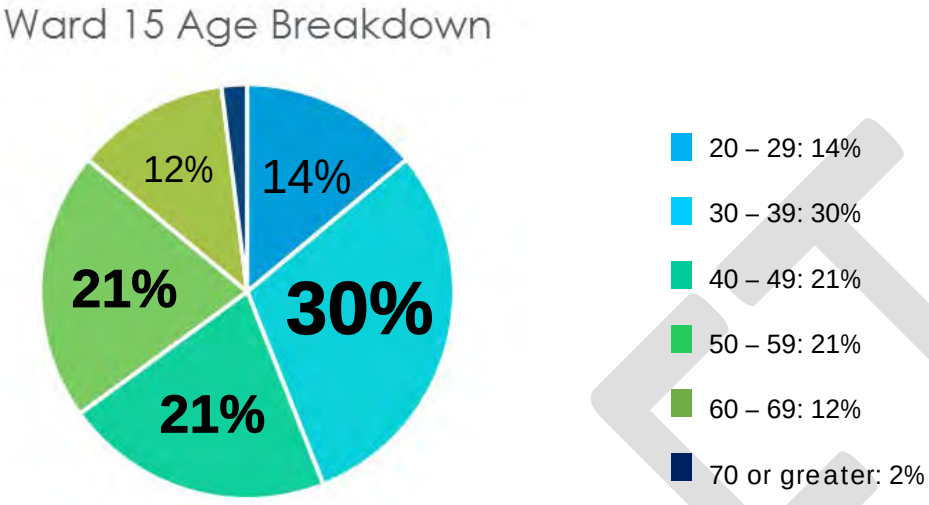
Demographics:

More information about the residents of Ward 15.

- 92% of the respondents live in the neighborhood
- 79% of those that live in the neighborhood own their house
- Where do they live?



- What is their age?



- **68%** of households **DO NOT** have children under the age of 18 (Millennials & Gen X without children)
- **66%** of residents describe their neighborhood as **well kept**

Neighborhood Concerns:

- Very Concerned:
  - 60% Pedestrian Safety
  - 65% Speeding

Residents of Ward 15 are very concerned about pedestrian safety and also the speeding within the neighborhood. This identifies a conflict between motorists within the neighborhood and those not using a vehicle. This might indicate the need to enhance pedestrian safety and decrease traffic speeds.

Neighborhood Experience:

Motorists obey traffic rules:
Below Average

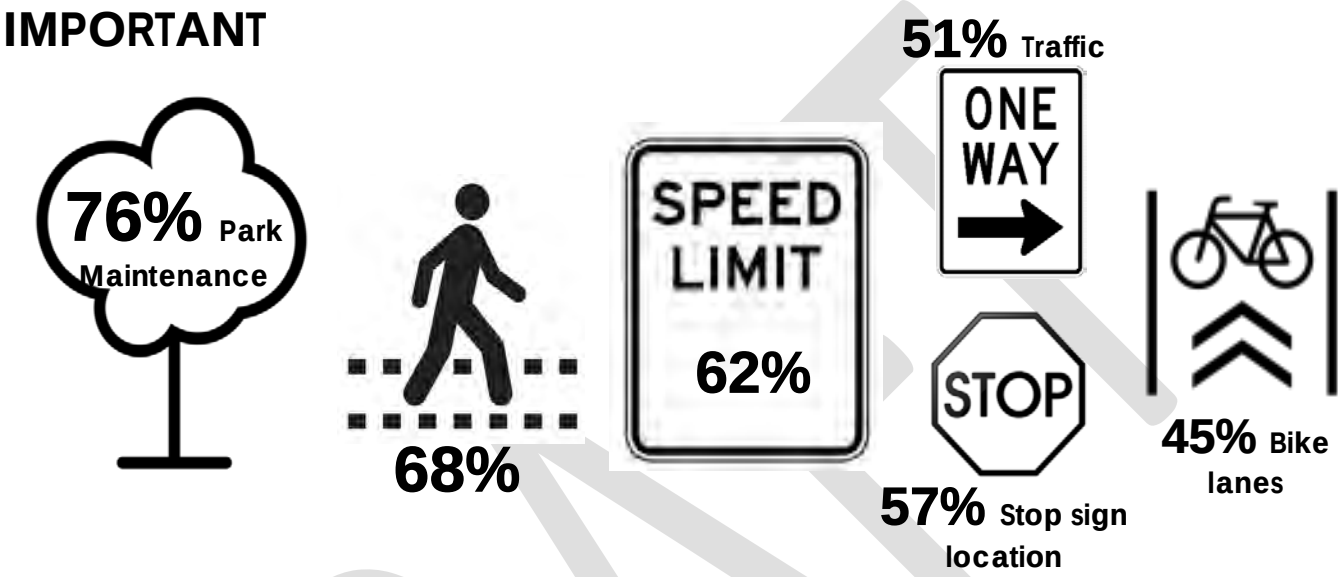
Signage is easy to understand // traffic circulates efficiently // I feel safe driving
Average

Most bicyclists obey traffic rules // Signage is easy to understand // bike lanes are clearly marked and provide a well-connected path // I feel safe biking
Average

Pedestrians follow rules // Signage is easy to understand // crosswalks are clearly marked and provide a well-connected path // I feel safe walking
Average

Residents feel safe driving, biking and walking, and feel good about the facilities available in the neighborhood. However, there is a general perception that motorists are not obeying the rules of the road.

Important in your neighborhood:



Residents of the neighborhood are most concerned with elements that make their neighborhood a great place to be, especially as a pedestrian. They have a strong desire to keep the park well maintained, as well as pay attention to sidewalks. The concerns about speed limit are reinforced noting that it is the third most important element. Traffic flow and stop sign location indicate a concern for the way traffic moves through their neighborhood. Finally, bike lanes as an important element indicate an interest in maintaining a transportation system that accommodates all travel modes.

Traffic Calming:

Survey results show the majority of residents are not interested in any of the 8 traffic calming measures listed in the survey (speed humps, roundabouts, chokers, dividers, bumpouts, speed tables, stop signs and one-way direction change). However, given the public meeting voting, the top three measures were speed tables, dividers and roundabouts.

By Location:

Where are specific areas of interest for the residents of the neighborhood?

- **Speeding:** Gustine // Hartford // Juniata // Arsenal // Roger // Utah
- **Pedestrian:** Crossings on Arsenal into the park // anywhere on Gravois // Morganford & Arsenal // Difficult to get to Schnucks across Grand // sidewalks in desperate need of repair
- **One-ways:** Parker, Potomac & Fairview dead end at Roger
- **Signs:** people run stop signs on Gustine // assess stop sign at Gustine & Juniata // overgrown shrubbery covering signs

- **Intersections (general):** Grand & Utah // Grand & Arsenal // Grand & Hartford // Spring & Arsenal // Gustine and Arsenal // Hartford & Morganford
- **Bike Lanes:** motorists do not understand how to use bike lanes at Grand & Arsenal

Attachment B: Specific Intersections or Concerns (Survey Question 13)

Are there specific intersections or streets you would like to see addressed? Please indicate those areas and issues you see currently at the location(s).

1	Intersections off Gravois, Chippewa, and S. Grand crossing to Schnucks. In general, S. Grand is very difficult to cross for pedestrians if you are not at a stop light, but at a legal crossing (i.e. Connecticut and Grand.)
2	Humphrey exit to Morganford, cannot see around parked cars in front of Tower Pub on Mford. Alleyways in NW quadrant are in terrible condition with potholes, broken asphalt, uneven pavement. Not enough trees on Humphrey btwn Bent/Mford.
3	If there are more and more bike lanes, taking away vehicle traffic lanes, there's going to be more congestion. There are enough bike lanes. Speed bumps and speed tables are nice but not something I would like to see on major street in TGS.
4	Parking for the 3600 block of several streets (Connecticut where I live, but also Juniata, Wyoming) has become extremely painful for residents. There's ample parking in the Commerce Lot, but the lot is always underutilized. There must be a way to get visitors to South Grand to use the free public parking instead of taking all the spaces on the residential streets. I've lived here 10 years and in the past year more and more often, I'm not able to find ANY parking on my block- a real bummer when it's icy/raining/I'm carrying in groceries, etc., and a safety concern if I come home late and have to walk a long distance alone to get to my apt.
5	Morgan Ford and Hartford (poor visibility), Morgan Ford and Humphrey (congested), Morgan Ford and Wyoming (poor visibility turning south onto Morgan Ford from westbound WY). Need to assess visibility of street signs due to tree growth throughout TGS. Also all the 1-way streets along Roger south of McDonald need to have alternating E/W directions.
6	Traffic speed and volume on the 3600-3700 block of Hartford is incredibly high, and there is very little parking for residents. Delivery drivers, especially those for Dominoes, are constantly speeding. I, and many other residents, refuse to patronize that restaurant and ask others not to as well. Many residents have begun discussions concerning blocking the street and/or requiring parking tags for street parking.
7	Crosswalks along Gustine Police enforcement of the no left on kingshighway when you're going eastbound on Arsenal. Perhaps signage at Arsenal & Macklind that you need to turn left there to get to Southwest if you want to go Northbound on Kingshighway. Drivers going westbound on Arsenal and turning right onto Kingshighway often don't yield to pedestrians/cyclists exiting and entering the park. Perhaps signage there (all major park access points really) about pedestrian right of way
8	the stop signs at Juniata and Gustine seem to cause problems because the are off set rather than at the corners
9	I live on the corner of Wyoming and Roger and I've seen more people just run that intersection, not even rolling stop, just speeding through. I understand that Roger is a bit of a 'cut through street' but I've seen pedestrians start walking with the assumption that someone is going to stop and the car slams on their breaks because they had no intention to stop until someone was walking there. I'd hate to imagine a time when the driver is looking away for that split second.
10	Only intersection I see a big issue with is Morganford and Hartford. It is a blind corner and likely the ONLY real intersection in the neighborhood that needs a 4-way stop sign. I would love to see less 4-way stop signs in the neighborhood in general but this particular intersection actually really needs one.
11	I think the biking lanes on Arsenal are the worst idea. Why not widen the bike lane that's in the park?? For use by the very few bikes. I know several people who are avoiding our area due to the congestion caused by the bike lanes that slow down traffic flow.
12	S. Grand worse since re-do. Parallel parking cars back up traffic into intersections, which cause gridlock when lights change & cars are stuck in the middle. Also, Arsenal 25mph signs aren't there, so cars continue to speed. The double-car bus also makes things worse as it no longer fits into bus stops.
13	Grand at Arsenal all directions. Many drivers disregard the bike lanes and use them as right turn lanes. Tower Grove at Magnolia. Drivers disregard bike lane and use it as a second straight lane.

14	Spring between Gravois and Chippewa has too much traffic moving at high speeds, ignoring the stop signs.
15	I don't like it that there is no left turn onto Arsenal when heading north on Grand. As a result, most drivers opt to turn west onto Hartford and they drive really fast down our street, which has lots of little kids on it. I am in the second block west of Grand. The entire intersection of Arsenal and Grand could use improvement. Heading south on Grand, traffic gets clogged up at the intersection as well. One other thing is that I don't understand how to deal with the bike lanes when I am going to make a right turn. Can I cross into it as long as no bikes are coming, or do I have to wait until the line is no longer solid? Coming south on Grand, one of the 2 lanes becomes left-turn only, leaving those continuing south and those who want to turn right stuck in the same lane. There is room for right-turners to get out of this lane to advance to Arsenal, but not if they can't cross the bike lane until they get within a few yards of the corner.
16	Roger... Many cars driving above speed limits, failing to stop at stop signs
17	I live on S Spring in the Wedge. I would give anything to see it changed to One Way. It is dangerous with cars speeding both ways and ignoring the stop signs.
18	At Arsenal stop signs I have a great deal of difficulty getting cars to respect my right of way. My dog and I were almost struck by a motorist who suddenly decided to go while I was crossing in the intersection. Also, the pavement along Center Cross Drive is badly deteriorating and riding a bike on it is so bumpy it's close to being unsafe. While walking through the neighborhood I often see cars speeding along one-way streets, it would be great if there were speed tables along the residential streets. Especially with the number of kids playing in the area!
19	Drivers sometimes use the bicycle lanes on Arsenal to pass illegally. Few people obey the speed limits on Arsenal and delivery drivers often speed down Hartford. The south bound lane of the Center Road through Tower Grove Park from Magnolia to Arsenal needs to be reworked. People assume the right turn only lane is there for them to use as a passing lane and that the round about is two lanes. The left lane into the park should be made a left turn only lane the through traffic should be routed around to the right lane. More police presence would be appreciated. On South Grand the northbound lane that begins just south of Arsenal should be extended to halfway to Hartfort so the cars turning onto Grand in the morning have room to enter.
20	One way from Bamburger and Spring to Potomac and Spring. It's one way,but cars want to get to the other end of Potomac without going around. Therefore they drive wrong direction on a one way street... Many accidents have occurred on the street because of wrong direction driving.
21	Gustine. Dedicated bicycle lanes on Gustine.Stop signs on Gustine
22	At the intersection of Hartford and Morgan Ford on the east side, we need to sign for cross traffic does not stop for the stop signing Hartford. A lot of near miss accidents there as it's a rare non four way stop intersection. The east side of Morgan Ford also needs a crosswalk at Arsenal to cross over into the park. It is highly inefficient to have to cross Morgan Ford to the west intersection to then cross Arsenal.
23	I bike daily through tower grove park and would like to be able to bike through using trails without getting off my bike to cross the stone gutter along the main road. I don't see how the park can be accessible for people in wheelchairs who would be stuck on one side of the park.
24	One ways dead end in to each other around parker fairview potomac at Roger. Move light at Spring and Arsenal to Gustine and Arsenal. Synchronize lights on Grand, especially with bridge out at Kingshighway. Better turn lanes on Gravois tough to make a left anywhere.
25	I live at the intersection of Roger at Wyoming St. Daily people driving roll through the 4 Way Stop Sign intersection at various speeds. There are also others who simply RUN the Stop Sign altogether. These individuals clearly have no regard for others at or near the intersection. When we have friends visit from out of town, I tell them to make sure the Car Stops at the Stop Sign, before you cross the street. The reality is people are going to get hurt. That is a scary thought. I work in my garden upfront and in the back weekly. I feel my presence helps with some drivers, but not all.

26	Gustine is a problem street for speeding, lack of visibility, insufficient stop signs, cross streets not lining up evenly. Parking at the roundabout on Center Cross should be severely limited. I've seen near misses between cars/pedestrians and cars/bicycles there. Not a safe area to drive with the parked cars
27	Gustine and Juniata - More clearly marked stop signs Juniata east of Gustine - Need speedbumps or tables to slow down through traffic Grand - Police need to enforce red light infractions
28	Morgan Ford and Arsenal should have crosswalks on all three sides. Bumpouts at all crossings to the park would make the trip across the street shorter and safer. Traffic calming in most residential streets would prevent speeding. Speeding is more of an issue on the wider, two-way streets it seems. Gustine needs more stop signs to calm traffic, but the intersections are hard to to put stop signs on since the streets don't line up. Thus, other calming measures might be beneficial like speed tables or speed humps. The Gustine/Arsenal intersection has higher traffic and could possibly benefit from a stop light.
29	Arsenal striping needs to be more visible. There are so many lane markings both old and new. If it is raining or the morning and evening sun is shining on the street, traffic is all over the place because they don't know what lines to follow. This is very dangerous for bicyclists, pedestrians and on coming traffic.
30	It's the intersection at Connecticut and Gustine. Pulling out onto Gustine from Connecticut is pretty dangerous because oncoming traffic isn't totally visible. I think adding a No Parking zone on the north and south side of Connecticut (on the east side of Gustine) would go a long way toward alleviating this issue. A lot of intersections have these No Parking buffer zones and they seem to help.
31	Our neighborhood, grand to say Roger is all easy, i know it fets a little more confusing down the hills. I think some drivers are startled by other drivers bc usually there isn't traffic and they over react to it, and they think we need things to reduce speeding. Most neighbors don't speed it's county people etc. Maybe signs would help.
32	Gustine is a speedway from the park down to Chippewa. Too many people speed down Hartford, and I think many ate avoiding Arsenal. Bike lanes end abruptly.
33	Arsenal crossing into the park at MGF. Car drivers do not understand or acknowledge the pedestrian sign. It's very dangerous. Also, the cross walk at Hartford and MGF. Stop sign in front of Three Monkeys should be elevated and curved into the intersection so drivers can see over SUVs.
34	Wyoming and Gustine is an ideal location for a roundabout
35	Many of the streets have one way streets where the next street is the same direction when it should be opposite. Some of the one way streets end up where you can't go straight because it's a one way street going the opposite direction. There is a stop sign on EVERY block on Spring. Too many! Can we move the stop light at Arsenal and Spring to Arsenal and Gustine, a much more used street? Traffic lights are terribly timed in this entire city but especially by intersections getting on interstates.
36	Pedestrian traffic around Hartford Coffee. Both cars and peds seem to not follow rules and it seems unsafe. Also, pedestrian traffic crossing arsenal seems unsafe as cars continue to not yeild to pedestrians. I'm also concerned cars using bike lanes as early turn lanes. It's unsafe for cars that try to follow the rules and bikers, too!
37	To me, pedestrian access to Tower Grove Park is a logical priority. Arsenal and Morganford needs a crosswalk on both sides of Arsenal. The other Arsenal intersections could use mid-median signage to remind drivers of pedestrians' right of way. I don't walk on Gravois often, but imagine that it has similar needs. Utah & Gustine could also use mid-median signs. I like the idea of bike lanes on Gustine, Roger, and Morganford, which strike me as TGS's major internal north-south routes. See below for more general suggestions.

38	South grand speed limits dont seem to be enforced whatsoever, often times while driving people use the center lane to pass me. Pedestrian crosswalks are not clearly marked for motorists, and motorists tend to ignore yielding to pedestrians in crosswalks.
39	I would like to see more stop signs on Gustine. Particularly at the end of my block, Gustine and Wyoming. It is very hard to cross Gustine when walking my dog and pushing a stroller.
40	Just general problems of people running stop signs. I have almost been hit numerous times, especially from cars driving on Utah.
41	Hartford and oak hill - see cars almost get hit all the time. There are stop signs on nearly every other intersection so many people assume there is here too. I'm surprised with the school and bus stop so near. Hartford and Morgan ford - due to parked cars, it can be difficult to see to turn to morganford, even going right. No one stops for pedestrians trying to get to the park in pedestrian crossing areas
42	All the stop signs and signals won't help if the traffic laws are not enforced.
43	Speeding on Bent and Oak Hill, vacant unkept properties, balancing bikes lanes with car traffic - they pop up everywhere and all of the 2 lane roads back up
44	I constantly see folks blow through the stops signs at Wyoming going north and south on Roger. It may not be that bad of a thing since I've never seen an accident there, but if the city needs some easy money, just set up cops there.
45	Wyoming and Roger. Motorists start at Roger and speed uphill since it is an extra wide street. I think 42xx Parker should be one way. It's so narrow.
46	the new solution at Utah and Grand is not working. drivers coming west bound treat the utah side of the intersection as thier personal dragstrip or u-turn area. I, along with many of my neighbors, would be interested in closing the Utah/Grand lanes off, inhibiting west bound traffic in a manner similiar to Flora. We would appreciate feedback as to how to go about this.
47	I would like to see a crosswalk on Bent to cross Arsenal into the park along with a cut out that connects the road to the bike path
48	Morganford and Arsenal intersection can get congested when vehicles are delivering to the market. Also, people parking along Morganford during non-parking hours, i.e., in the mornings between 7 and 9.
49	McDonald between Gustine and Roger. First 2-way street north of Tholozon on the east side of Roger. Speeding is an issue, especially with westbound traffic because it's downhill from east to west.
50	Wyoming and Gustine, Utah and Gustine
51	39xx block of Parker people routinely speed downhill on this one way. The alley way to the south also sees excessive speeds in both directions. I believe a couple speed bumps could address this safety concern. These should be utilized throughout the neighborhood on all streets that are one way and downhill.
52	Hartford between Grand and Gustine. These two blocks have become an arterial for delivery drivers of restaurants on Grand, and speeding above 45mph is seen daily, despite repeated calls of complaint to those restaurants.
53	We need a stop sign at the corner of Connecticut and Gustine. School buses (among others) FLY down Gustine now.
54	Arsenal and Morgan Ford
55	Gavois @ Gustine should narrow for pedestrians and left hand turn lane on to Gustine.\ Sidewalks south of McDonald are a mess.
56	Utah at Spring and other locations. Drivers ignore stop signs. With the closing of Kingshighway more north south traffic speeding through neighborhood.
57	Grand traffic flow, confusion with bike lanes Grand and Arsenal, all directions- merging lanes, bike lanes all a mess EB Arsenal at Kingshighway- people make illegal left turns

58	Speeding on Utah. People running stop signs crossing Gustine.
59	Hartford, turning onto Morganford either direction, is incredibly difficult due to cars parking in front of The London Tea Room. Visibility is diminished and creates a panicked decision to pull out quickly.
60	At the intersection at Roger and Tholozan, traffic heading eastbound on Tholozan turning North on Roger does not have any sort of yield/stop sign, so it is often very confusing.
61	The 3800 block of Juniata is a speedway. We live right in the middle of the block and often find ourselves cringing at the speed of passing cars. We need a rumble strip or speed bump! This is a neighborhood with many small children, we have a baby is almost ready to walk. These crazy drivers could use some deterrence!
62	
63	Many of the spaced-out stop sign intersections on Gustine are confusing.
64	Would love bike lanes with car door buffers throughout the neighborhood, but especially on Grand south of Arsenal.
65	I've lived here for fifty years and i have never had a big problem until the bike lanes were installed. Taking a lane from cars,trucks,and busses is ridiculous, there are many many times more motor vehicles on the road than bicycles. widen the sidewalks or something there has got to be a better way to do this. The bicyclist for the most part DO NOT follow the traffic laws, all you have to do is sit at a stop sign on arsenal and watch how many run those stops. some biker is gonna get ran over with these bike lanes the way they are. Thank You
66	We need bumpouts by the library on McDonald. Cars park too close to the library parking lot and it is near impossible to see. I've seen several accidents from cars leaving the parking lot who cannot see past the cars that are parked. We also need a fix for the jagged intersection at Juniata and Gustine. The stop signs are awkward and so most do not stop at the wrong place. Cars coming east off of Juniata and trying to turn onto Gustine or continue strait on Juniata have a real hard time ever getting to cross. It is also very unsafe for pedestrians as cars do not know exactly where to stop.
67	Gustine and Juniata--'stronger' stops
68	Magnolia and Tower Grove Ave. Until recently, there used to be two northbound lanes rom tower grove ave that merged right after crossing magnolia. This worked great and reduced traffic at the magnolia light. Now there are white plastic bike lane barriers that have eliminated this second lane. This is problematic because cars that want to go straight (north) can get stuck behind a car trying to turn left (west) onto magnolia. I routinely have to sit through two lights every morning because of this issue. There are three easy solutions: (1) remove the white plastic poles and return the intersection to how it was a few months ago (2) no longer allow left turns from tower grove ave onto magnolia (3) make a dedicated left turn lane from tower grove ave to magnolia.
69	The traffic lights at Hartford and Grand needs to be adjusted. When I drive east on Hartford to turn left onto Grand, the northbound traffic on Grand is often so backed up that there is no room for my car to turn into the lane on Grand.
70	Gusting and juniata. Confusing and people run stop signs on gusting. Not well marked.
71	Recently added bike lanes in the neighborhood and around town still get motor vehicle traffic, which is very dangerous. Recommend use of pylons to separate critical areas of bike lanes (near turn lanes for major roads), just as has been done downtown on Chestnut. Bike lanes are not fully marked with no parking signs, so it is not uncommon to encounter a vehicle parked in the bike lane during my daily commute.

72	Where Roger merges into Phillips (near Gravois). There is a used car lot on one corner that uses the street to park cars for sale. With cars parked on both sides of the street it is very difficult to make a left off of Gravois onto Phillips if there is a car trying to get out onto Gravois. Suggest making Phillips one way which will allow a left hand turn off of Gravois into the neighborhood. Park only on one side of the street for Oak Hill and Roger. Put a white dotted line down these streets as well because idiots don't know they need to stay to the right - they drive down the middle. Repave Morganford from Arsenal to Utah. Road extremely pitted and rutted. DO NOT block off streets w/concrete barriers. We are wanting to improve the flow of traffic, not hender it. What was done on Grand between Arsenal and Utah is utterly ridiculous. I have stopped driving Grand completely.
73	Tholozan and Roger - the north end of the island has traffic signage that is confusing and dangerous. Southbound traffic on Roger could t-bone a driver going north from the diagonal side. Gustine - Tholozan north to Potomac, mostly the northbound lane. Whatever work was recently done tore up the road and the repaving was poorly done. It's very uneven. I'm afraid I'm damaging my car, or at least my tires, when I drive there.
74	There are a lot of blind corners in the neighborhood. E.g.: Hartford & Morgan Ford, Bent & Arsenal, well, most of Bent where there are only two stop signs and cross traffic doesn't stop. These corners can be super dangerous because it is hard to see traffic when you are at the stop sign and sometimes cars go fast expecting you to stay stopped. I'd really like visibility to be worked on because I think 4 way stops are overused in the neighborhood, but at the same time I tend to use streets like Wyoming with a lot of them because they are safer, and at the end of the day, quicker, so if visibility can't be improved, I'd prefer more 4-way stops. There is also the ridiculousness of Roger street intersections at Parker, Fairview & Potomac where all the one way streets all point to Roger. That needs to change.
75	The intersection of Gustine and Connecticut is a mess because of the way the streets are staggered -- pedestrians end up crossing without a stop sign, and cars headed south on Gustine often disregard the stop sign at Connecticut.
76	At all intersections with a one-way street there should be a 'Do Not Enter' sign on both sides of the street not just one side in the wrong way direction.
77	Traffic on Arsenal moves way too fast for being on the edge of a heavily used park. I play chicken with my infant twins in the stroller and aggressive drivers running stop signs EVERY SINGLE time I try to cross into the park, it doesn't matter which cross street. It is infuriating and there have been way too many close calls. Inside the park, same problem. Center cross on Tower Grove through the park is a mess. Pedestrians take their lives in their own hands when they cross these cross walks. Aggressive drivers frankly don't care, and more than once I have been almost hit-again pushing my children in the stroller, by drivers who completely disregard stop sign and try to race walkers through the intersection because they are 'in a hurry'. I've had other drivers stop and try to help me get the cops called to ticket such drivers because they were being so reckless. It is really unsafe, and again, maddening. Otherwise traffic on side streets moves way too fast as well. My children do not play out in front of the house on Juniata, ever, for fear of getting run over by speeding traffic if they happened to step out into street. The only bright spot is that Grand has significantly slowed down with the new changes and is much, much more walkable. I do really appreciate that and think it is overall good for the businesses on South Grand even if the street gets more congested.
78	At the intersection of Tholozan and Roger, there is an unoccupied church. Near this is a slope turn with no stop sign or Yield sign for traffic in both directions. Drivers usually merge both ways with caution out of habit. But near misses have occurred.
79	Constant illegal left turns heading EAST on Arsenal at Kingshighway. Make a left turn lane there or ticket offenders. Driving east on Juniata and Gustine.
80	juniata at gustine is confusing

81	We see people blow through the stop signs at Oak Hill and Utah, coming from all directions. Some of it may be that signage is hard to see, but people really pick up speed, and it's a place where there are a lot of pedestrians and bikers. We are one house down from the corner and are on our porch a lot to see this.
82	3900 block of Hartford has a speeding problem. Some drivers use it instead of Arsenal, to get westbound faster. Would like to see a speed hump in 1 or 2 spots along the street.
83	Gustine by gravios plaza, sewer repairs made, patched road temporarily. Don't know if more work to come? If not need to redo/repave permanently doing a better job.
84	Would like a left hand turn lane approved from Grand Avenue (North) to Arsenal (West). It would relieve speeding traffic on Hartford.
85	Grand and Arsenal / Grand and Hartford - traffic is always backed up. Many times cannot turn onto Grand from Hartford for multiple lights due to Grand light turning red before Hartford light turns red north on Grand causing lanes between Hartford and Grand to be filled with cars.
86	Utah and Gustine and Utah and Spring! Multiple times per day, drivers speed through the stop signs endangering pedestrians, children and pets!
87	Especially now that it there is a dedicated bike lane, the 25 MPH speed limit on Arsenal is absurdly low. Also, the excessive number of stop signs on Aresenal between Center Cross and Spring is unreasonable and needlessly slows traffic. Taking Grand down to 2 lanes has actually made it more difficult to cross because there are fewer significant breaks in traffic. There used to be a dedicated pedestrian stop light. Grand and Arsenal are both major thoroughfares for our city and should be treated as such. My family and I walk the neighborhood a lot and I still firmly believe we have over-valued pedestrian traffic along those roads. It's not that difficult to cross when there are appropriate mechanisms (e.g., painted crosswalks, dedicated stop-lights), but every corner does not need to allow crossing with such ease.
88	There is frequent speeding on Utah. One way traffic leading to Roger by Friendly's is very inefficient. Also, Kingshighway and Arsenal is not pedestrian friendly.
89	Arsenal at Tower Grove Ave Timing of lights on Grand (specifically, Wyoming)
90	I am interested in: safer pedestrian crossing at Grand to get to Schnucks. I see frequently see dangerous close-calls between cars and pedestrians, safer pedestrian crossing in the Grand business area, possibly signs indicating motorists must yield to pedestrians, lines or crosswalks painted on the street at stop signs to indicate where vehicles are supposed to stop, more crosswalks from the south side of Arsenal to Tower Grove Park , better north/south bike crossings through Tower Grove Park. Right now Center Cross is the only decently paved north/south crossing along the whole park.
91	Gustine is still a problem even with stop signs. 70% of cars do not stop!
92	speeding along gustine, roger, and oak hill.
93	Parking on east side of Morganford restricts visibility for those coming from Hartford and alley. There's no stop sign at the intersection (please, no more stop signs) so people come flying trying to make the light at Arsenal. Parking should be restricted a certain number of feet from the intersection to allow drivers turning onto Morganford from Hartford to see oncoming traffic. Also, parking should not be allowed in front of Local Harvest Grocery in the morning during the week. It blocks the right turn lane onto Arsenal causing backup in the AM during rush hour.
94	Need a four way stop at Holt and Beck.

95	Hartford between Grand and Spring - extremely high traffic volume and excessive speeding especially heading west from Grand. It seems much of this traffic is due to Hartford being the last side street before Arsenal when heading North on Grand that you can make a left turn. Much of the traffic is thru traffic trying to go west on Arsenal. Much of this may be alleviated if a left turn was allowed onto Arsenal when heading North on Grand. In addition, speed bumps would be helpful to slow the traffic and make it a safer neighborhood. (I think this would be beneficial on all of the first blocks west of Grand in Tower Grove South). Another solution would be to block off Hartford just west of Grand, just west of the alley. The businesses would still be able to use the metered parking, but the unnecessary thru traffic would be eliminated.
96	Hartford and grand, and Arsenal and grand.
97	Gusting seems to be a racetrack because of the lack of stop signs. People tend to avoid Roger and Spring because of stop signs, therefore they go through the neighborhood via Gustine.
98	The one-way direction changes on Potomac, Fairview and Parker at Rogers hinders traffic flow. Narrow two-way streets should have parking only on one side. The bike lanes added to the Chippewa underpass between Meramec and Holt causes traffic to back-up and are a traffic hazard when going east on Chippewa.
99	Juniata and Gustine. Majority of drivers fly through that stop sign like it doesn't exist. Main issues: speeding on residential streets. Speeding and tailing on Arsenal. Cars driving in bike lane/parking lane to pass cars driving at reasonable speed. Not stopping at stop signs. Bike lanes are not consistent throughout neighborhood. Bike lanes would be improved if buffered by parking lane for cars.
100	Grand south of Utah. I would really see this area calmed. All of Gravois. Most of the neighborhood is fine, though they could be improved.
101	South Grand at both Connecticut and Humphrey do not have cross signals OR SIGNAGE! Please at least install 'Ped Crossing' signs here. Terrifying for families trying to cross as drivers will NOT stop for them.
102	Roger between Parker and Miami is too narrow for parking on both sides of the street.
103	I often see drivers going through a red light at Arsenal and Tower Grove. In my experience, this is a daily problem. It is more rare when it does not happen so I always wait for traffic to stop completely before I go on green. Even then, I feel like I take my life in my hands.
104	Arsenal and all residential adjoining streets South Grand
105	Arsenal between Kingshighway and Center Cross Dr. is a mess. The lines that were painted after the bike lanes were put in are nearly impossible to see at night and/or in the rain.
106	Many sidewalks along Arsenal and near Park are very bumpy making it hazardous for walkers/runners/kids on bikes. Some motorists don't seem to get the bike lanes still and drive in them.
107	Spring has all way stop signs on every intersection. Many other low traffic intersections have all way stops, in contradiction to city ordinance. A roundabout at Arsenal and Center Cross, replacing the stop light, would improve traffic flow and reduce idle sitting. The stop light at Arsenal and Spring does not meet city ordinance requirements and could be removed, improving traffic flow.
108	I think Arsenal should have a two-way cycletrack protected by parking. An example is the 15th Street cycle track in DC that showed a 205% increase in bicycle volume after the cycle track was installed. An alternative is to take bicycle traffic through Tower Grove and onto a residential street like Pestalozzi that goes through to Broadway. Ditto for N/S streets. Bicycle traffic should move to Compton or 39th Street to rather than Grand.
109	Phillips trying to enter Gravois (very dangerous)and Oakhill trying to enter Chippewa , especially eastbound

110	Eastbound Arsenal St. approaching Kingshighway, there are no lane dividers (no paint lines dividing the right lane from the left lane. Traffic often backs up here. One problem is that many morotists, as they approach K-hwy, drift a little over to the right, not staying in the center lane. When this happens, cars that would have been able to use the right lane to get by and make a right on red, cannot get by and traffic begins to back up. A painted lane divider would at least make some people realize they need to stay in their lane. Thank you!
111	The crosswalks from TG South across Arsenal to TG Park. Drivers who do stop at the stop signs rarely look both ways before proceeding. There need to be pylons or signs that sit on the double yellow lines reminding people of the crosswalks. They are also not well labeled and could use some color or diagonal hashings. Many stop signs are hidden behind brush and overgrown trees. These need to be bumped out if the city can't keep up with trimming. In most cities, it is illegal to park within a certain distance of alleyways or cross streets. Some of the streets here that aren't at 4-way intersections have cars parked in the sightlines of cross traffic, and it's impossible to see any oncoming traffic as you're trying to turn or go straight. Curbs should be painted yellow to prohibit drivers from parking so close to these streets. I don't want more 4-way stops because they're already ridiculous in number. I'm referring to Roger and Oak Hill in particular. Markings for crosswalks also need to be emphasized on Grand so people don't pull up into the intersections. I get into fights daily with people as I'm trying to walk who are so impatient to cross west–east across Grand that they can't stay behind the crosswalk lines. It is dangerous. Speed humps are AWFUL for cyclists. Especially the brick ones like in Shaw and on TG Avenue in the Grove. I have popped numerous tires because of these.
112	Intersections that are offset like Gustine and Juaniata with a stop sign are confusing. It's hard to see and understand if people are stopping. As both a driver and esp. as a pedestrian.We think there needs to be a heavy line painted on the road when there is a stop sign. Signs can be hard to see until you're right on them.
113	Arsenal and Oak Hill is dangerous to pedestrians and cyclists. People speed through the intersection, barely stopping at times. Also the traffic noise at this intersection is EXTREME due to very loud vehicles accelerating after stopping.
114	Hartford and Morganford - difficult to make right hand turns, especially at rush hour.
115	Gustine and Hartford, cars speed down Hartford, ignore the Gustine stop etc.
116	Hartford street has an uncommon number of speeders. Gustine has a bunch of stop sign runners.
117	Tholozan and Rodger
118	Speeding & running stop signs on Oak Hill a BIG problem Morganford & Arsenal light--cars turning left endanger pedestrians--crosswalk should be on the other side!
119	Gustine between Potomac and Utah
120	Hartford and Gustine needs a stop sign.
121	Grand and Arsenal! Arsenal and Kingshighway! Worst is Shaw & Grand!!!!! Morning traffic and evening traffic is RIDICULOUSLY CRAZY!!!
122	On Roger crossing Arsenal to the park. I have almost bee hit MANY times by drivers not stopping at the stop signs.
123	speeding westbound Utah thru Grand on to Utah Pl speeding Gustine
124	All the cross-street lights across Grand from Arsenal to Utah have green cycles that are too short, causing frustration when people do not have enough time to walk or drive across Grand.
125	Roger ... The speeding and the one way cross streets changing directions at Roger.

126	Wyoming and gustine (or roger?), I think, needs a stop sign. It's an odd place not to have one, especially since it doesn't line up.
127	The stop signs and street locations at jurists and gustine are confusing are dangerous. No is quite sure where to stop, and who goes first. That, added with people walking to gustine market, makes that a confusing place for drivers.
128	The speed of some cars on Potomac and Giles; the disregard for 4-way stops. Trash along the streets and trash bins that are full - we need more bins and they need to be dumped often.
129	Oak Hill at Arsenal Center Cross at Arsenal Morganford at Arsenal
130	Speeding down Hartford. Especially delivery drivers.
131	Grand and Arsenal is a congestion nightmare. The bike lanes are unnecessary in that block and contribute to the congestion. The light timing is awful and the westbound bus stop blocks flow for an entire light cycle. The planters on grand suck and need to be bulldozed. They are dangerous in that they block visibility for pedestrians and land users and create difficulties for pedestrians crossing grand rather than a refuge. The also add to congestion.
132	Oak Hill/Arsenal- -pedestrian crossing to the park. Motorists roll through this stop regularly. I have been nearly struck with my small children crossing to the park on numerous occasions.
133	All intersections leading to TG Park. (Crossing Arsenal to get to park for example.) Also the intersections in neighborhood, especially on busier roads like Gustine. Recently was in Boulder CO and it was beautiful how cars, bikes, skateboards and people walking all shared the road so respectfully. Bright yellow signs emphasizing to stop for pedestrians at all cross walks/intersections.
134	Speeding on Juniata and Hartford near Grand. I live on Juniata and walk regularly in the neighborhood. At least once on every walk I see a car or motorcylce going at least 20 MPH over the posted speed limit. I have never witnessed a police officer watching for these speeders on either street.
135	The intersection leaving towergrove park in the west to cross arsenal onto reber is impossible as a pedestrian and incredibly unsafe on a bike. I am surprised that no one has been hit and killed there. Every time I have crossed with my kids I am terrified that their chain will break or something and the wall of cars coming at 50mph will hit them. Unfortunately, it is the BEST place to cross on a bike to get the Shnuks and other points on the hill, so many people use it. A light that quickly responds to bikes and pedestrains would be wonderful. The pedestrian light on grand at the East exit is far too slow to respond so people almost always cross in a traffic break before the light turns. In other countries and cities I have visited, pedestrian lights are *quick*.
136	The corner of S. Grand and Arsenal. The traffic is too congested on both the east and west sides of Arsenal.
137	I think we need less one-way streets. I understand the need for some with the size of the street itself (although I live on the 4000 block of Miami and the two-way works just fine. Don't be deterred by the bike-haters. People will use the bike lanes more when the infrastructure for bikes grows. It isn't enough to just have some bike lanes here and there. It all needs to connect to truly work.

138	There should be a crosswalk to the park at Alfred and Arsenal streets. There are way too many stop signs all over the neighborhood and especially on Arsenal. This impedes traffic flow and causes stop sign fatigue so that people barely stop at all, which is dangerous for pedestrians who assume they will stop. A lit up speed sign that informs people of their speed would be nice instead. Or perhaps a blinking crosstalk that a pedestrian could hit a button for when they need to cross? A huge problem on Arsenal is visibility at night, particularly when it rains. It is almost impossible to see the lines on the road so people revert to the old graded over lines (which are sadly more visible). It's a very dangerous situation.
139	There are some awkward spots as you go down Gustine.. makes it a little unclear who is going and when.
140	bent the do not stop at stop sign, u Tahoe and Morgan ford, Meramac and Morgan ford intersection.
141	The intersection of Cross Center Dr/ Tower Grove Ave and Magnolia Ave. Is it possible to take the center lane on Tower Grove Ave entering the park and change it into two left turn lanes one from Cross Center Dr onto Magnolia Ave and the other from Tower Grove Ave onto Magnolia Ave.
142	There are no stop signs or lights on Arsenal between MorganFord and Kingshighway. There is only one crosswalk on this stretch (at Lackland) and no drivers ever stop for pedestrians who want to use the crosswalk. I would love to see at least one stop sign at one of those streets to make it easier for pedestrians to cross. Or, for example, at Grand & Pestalozzi there's a stop light that can only be activated by pedestrians wanting to cross. Could we put something like that along Arsenal at one of the short streets to the south?
143	3900 Hartford one way people turn up Hartford from Roger going the wrong way
144	Gustine & Hartford - fast driving. No crosswalk. Hard to see in both directions when crossing gustine on hartford (in car & walking). Would love to see a stop sign or speed hump. 3900 block of hartford - would love to have 1 or 2 speed humps. Fast driving. Many children on the street. 4000 block of Juniata... My car was hit by another car while dropping children off in the morning. The pick-up / drop situation has much room for improvement. At the very least speed humos might help.
145	All of the crosswalks surrounding Tower Grove Park should be more clearly painted with signage in the roadway and/or speed tables. Drivers do not pay attention to pedestrians at these intersections. That said there are too many stop signs in the neighborhood, so drivers are impatient and roll through all of them.I am supportive of bike lanes, but the paint fades quickly and the lines (bike and car traffic lanes) are extremely difficult to see in the rain. Plus people drive in the bike lanes all the time. Perhaps pylons or slightly raised reflectors could help separate the car and bike lanes.The roundabout in the park is in horrible condition. The speed bumps are too high and the road is in desperate need of resurfacing causing damage to cars.
146	Hartford and Morgan Ford needs a stop sign all four ways. Pulling out of Hartford onto Morgan Ford is extremely dangerous because drivers cannot see around cars parked there. Also no one stops at that crosswalk for pedestrians. They would be more likely to if there were stop signs there.
147	Westbound Wyoming T's at Alfred. There are no stop signs at any part of that intersection, causing near collisions multiple times each day.Alfred between Fyler and Arsenal is used at a very high level for speeding cut-through traffic to bypass Morganford. This is a majority residential street with only one stop sign in 4 blocks of Alfred, which makes it attractive as a cut-through, but also unsafe.The pedestrian crosswalk at Lackland and Arsenal into TGP is not well marked and not yielded to by motorists. It is the only marked pedestrian access to the park between Kingshighway and Morganford. Better signage, markings, and/or a stop sign would be great there.
148	I would like to see speed pump or something similar at all crosswalks into the park. A lot of drivers don't follow the stop sign or still stop but are on their phones and don't see predestrians.
149	I'm one house up from Spring and Hartford, many cars drive right thru the stop signs there, all day, very dangerous. My 80 yr old neighbor was broadsided at Roger and Utah where the man did not stop at all. She spent two months in the hospital and rehab.

150	Need a crosswalk to the park at bent and arsenal
151	Confusion around, and poor visibility at, stop at Gustine and Juniata. Signs should be more apparent and lines painted on the road.
152	Juniata and Gustine needs a defined crosswalk.
153	Businesses along Grand use Hartford as a cut-through for their delivery cars. The delivery cars are notorious for speeding down the street. In addition, with the lowered speed limit and the high number of stop signs on Arsenal, many drivers use Hartford rather than Arsenal so they can avoid traffic. These people also speed through the neighborhood. We have a lot of young families on our street and I would hate to see anyone get hurt.
154	Hartford street at the alley behind the west side of S. Grand has an incredible amount of come and go traffic and is a blind intersection for cars pulling out from the north side of Hartford. Many accidents and near misses mainly due to drivers accelerating west on Hartford after making the turn off Grand. Spring avenue from Arsenal to Utah is terrible because of excess of stop signs and the resultant roll through stops at near speed limit.South Grand business district 25 MPH speed limit is disregarded by even school bus drivers. The bump outs have done little to slow the impatient drivers. More actual speed awareness is needed. Also has a huge problem of pedestrians J-walking rather than using marked crossings - unfortunately, many are school age kids.
155	I Live ion Utah Place near grand, many drivers seem to think that the divided lanes are an open invitation to drive as fast as possible, starting from crossing Grand and going west. i also understand the functionality of the accepted rolling stop in St. Louis, seems to be a geographical accepted thing, but the non-stop in pedestrian and child filled zone is rampant
156	Intersection of McDonald and Spring. A 3 Way stop that is more consistently ignored (from all directions) than followed. I work from home and see at all times of day/night cars rolling through (usually not looking for on coming pedestrians or traffic) , as well as, blow through/completely ignoring the signs. There are children that live on the street, several in the apartments on the corner of this intersection. I also walk our dogs in the area and notice very little concern for pedestrians from drivers.
157	Cars driving/passing in the bike on Arsenal!! People are very aggressive there. I'll bet a month's harsh enforcement and ticketing would take care of it.
158	Gravois is a constant struggle to cross by foot or bike. High speed traffic and poor crossings. Would love to see more collaboration with the Greater Gravois Initiative. Curb outs, wider sidewalks, bicycle infrastructure at highly used intersections would be ideal.
159	Miami between oak hill and roger should be one way. It is so narrow when fully parked
160	Feeders into and from Grand is where the flow through traffic comes from. Maybe one way to Grand would help.
161	intersection of Arsenal and morgan ford; the cross walk is on the west side of morgan ford. the result of this is the walk signal is concurrent with the traffic left turn off of morgan ford, which puts pedestrians in danger during the walk cycle. the obvious solution to this is to put the cross walk on the right side, and prohibit right turns during the walk cycle (basically no one should have a walk signal when traffic is allowed to flow). or else make the crosswalk button work, and make it all-red during the walk cycle.
162	South Grand and Spring. It's extremely difficult to make left turns from Spring onto South Grand.
163	Oak Hill & Chippewa- used as a cut through and to avoid the Gravois light. Many accidents as the result of the speed on Chippewa and people turning out of QT. Traffic backs up Oak Hill during busy times of the day.
164	Utah and Grand--the redesign of that corner hasn't helped. Moreover, there are lots of cars running thru stoplights.
165	Turning left onto Aresenal where there are no stop signs is dangerous - the street parking blocks views of oncoming traffic. The thing that gets non-neighborhood dwellers is the randomness of stop signs vs nonstop signs at intersections. Prevent parking on top of the stop signs and cut trees so the stop signs are always readily visible from their approach. As for specific intersections, I know there are some bad ones, but not in my daily & routine routes.
166	Add stop signs at Bent&Connecticut Add stop sign at Oak Hill & McDonald

167	The intersection of Hartford and Gustine could desperately use a stop sign. There are lots of pedestrians and children that walk in that area, and cars are reaching max acceleration through that intersection before starting to slow down at Connecticut. With the streets being offset, many cars blow through the stop sign at Connecticut as well.
168	Stops are run often. Police in particular, speed and run stops without their lights on. Parking on our block of Hartford is bad due to bars/restaurants and the dickmann building, whose patrons should really be parking in the public lot.
169	Center Street through Tower Grove Park, which funnels much of the south city traffic is continually deteriorating and needs repaved!
170	Grand and Utah Grand compress lane going north from two to one
171	the pedestrian crossing at morganford and arsenal needs better signage and a button for crossing in both direction. also on Kingshighway taking the left onto arsenal - WE NEED IT TO INDICATE THAT UPCOMING TRAFFIC DOES NOT STOP AFTER THE LEFT HAND TURN ARROW IN RED. i HAVE SEEN SIGNS IN OTHER PARTS OF SAINT LOUIS THAT EXPLAIN THIS OR THE TRAFFIC LIGHTS SHOULD BE TIMED DIFFERENTLY SO THAT NORTH BOUND TRAFFIC HAS THE RIGHT AWAY AFTER THE LEFT HAND ARROW. PEOPLE GET CAUGHT IN THE INTERSECTION AND MANY DRIVERS GET MADE A HONK IF YOU DO NOT GO OUT INTO THE INTERSECTION - THEY DO NOT REALIZE THAT ON COMING TRAFFIC HAS A GREEN LIGHT AFTER THE LEFT TURN ARROW GOES AWAY.
172	Gravois needs to be addressed. There is not sufficient crossing for pedestrians, traffic can't flow well because of poorly timed intersections, especially at Grand, and there needs to be a bike lane. As it stands, Gravois is a deciding line that hurts our neighborhood, and in some ways our city.
173	Traffic heading south from Chouteau towards Arsenal on Grand is dangerous for drivers, pedestrians and bicyclists. Drivers speed and fight for positioning racing towards Arsenal. A major overhaul is needed that implements a more thoughtful, safe and efficient design. Furthermore, the lights on Grand need to be synced up to allow traffic to flow better--this will help ease drivers anxiety and reduce racing to beat lights (hopefully).
174	Vehicles speed very fast on the streets with very steep hills.
175	Grand from Utah to Arsenal, many cars pass in the center lane. Numerous times I have seen cars pass four or five cars sitting at a light and these cars pass in the center turning land. Tonight one ran the light while pedestrians were crossing the street. Many non trained bikers ride on the side walks of the business district. Again forcing pedestrians to the street or grass.
176	South Grand between Gravois and Macdonald accessing Schnuck's (no crosswalks, no lights) & South Grand between Gravois & Chippewa accessing Aldi's (again, no crosswalks & no lights). People cross the street in both areas without waiting for traffic to clear & avoiding going all the way to a traffic light or pedestrian crosswalk; this causes traffic to slowdown & creates too many opportunities for hit & run incidents, especially at night after dark.
177	People drive too fast on Arsenal between Kingshighway and Grand and often do not pay attention to pedestrians. I have seen speeding cars pass other cars that were going at the speed limit on the RIGHT, meaning in the bike and parking lanes. I think that the stop lights at Morganford and Arsenal, as well as the lights at the entrance of Tower Grove Park on Arsenal could be replaced by roundabouts. The road is wide enough and it would make traffic more fluid. As for making pedestrians more visible, some 'yield to pedestrians' signs could be added in the middle of the road, as has been done in Delmar or other areas of the city. It will also add more elements to the road, making people slow down more. People also fail to stop at most stop signs. One of the intersections where it is the most visible, and dangerous, is Utah and Bent. The stop sign going South on Bent is hidden by trees half of the year. Maybe we could move it a bit to the right. When people barely slow down at this intersection, it makes it very dangerous because there is not much visibility. I wonder if a roundabout could also be used there? Or speed tables just before the intersection? Also, along Roger are many one-way streets, almost all pointing to Roger. This seems counterintuitive and not helpful.

178	1. Arsenal From Center Cross to Oak Hill. Poor Pedestrian Crossing into park, Lack of traffic control at corner of bent arsenal creates driving/biking/walking hazard as ppl make blind left onto arsenal. No left turn allowed?? 2. Gravois from Grand to Chippewa westbound. High Traffic, downhill and curve in road leads to many accidents, better signage and traffic slowing for this stretch of Gravois. I recognize higher speed wanted on Gravois but this section, this direction needs something.
179	What about pedestrians. Someone put in all these bike lanes but there are very few places for pedestrians to cross Arsenal. What gives? Can't we have some more crosswalks and possibly with lights? Also, why are bicyclists allowed to use the pedestrian paths in Tower Grove Park? Can't they use the streets?

Attachment C: General Comments (Survey Question 14)

Comments or suggestions for the study?

1	I think bicyclists and their complete disregard for traffic laws is one of our biggest traffic safety concerns. The other issues I see often are people ignoring/rolling through stop signs and occasionally cars going way over the speed limit.
2	Keep circulation flow open. It is much easier to get around Tower Grove South than other neighborhoods, like Shaw, and I think that's a huge asset to Tower Grove South.
3	Bike lanes on Arsenal are ignored by motorists. Bikes should ride in the park instead of on Arsenal. Jay walking occurs near Local Harvest and it blocks traffic. Sidewalk on 4200 Humphrey is broken all over so it's dangerous.
4	I am concerned about bumpouts because they make cycling more dangerous. For example, the bumpouts on Grand interrupt the bike lanes and require cyclists to veer into an often-busy traffic lane.
5	People ignore One Way street signs constantly on Utah, McDonald, etc. How about additional signs, such as 'Fine for violation is $250'?
6	Increase signage for the parking lot. Signage or other efforts should be implemented to remind visitors that this is a residential neighborhood with many small children.
7	It seems like the worst offenders of bad driving (speeding, ignoring stop signs) are just using Arsenal to get through the neighborhood and are not living/visiting in the neighborhood. Perhaps some kind of driver education that if you're in a hurry, perhaps Arsenal isn't your best option, try I-44
8	I don't know how to make people follow the rules of the road. It seems futile.
9	I would be interested to know whether closing off some streets at Grand would help traffic and parking issuesI'm in favor of the bike lanes and biking in general but have concerns about bikers not following traffic rules. I'm worried about the potential for hitting a biker when they don't stop at intersections.
10	PLEASE NO MORE STOP SIGNS and NO SPEED BUMPS. It is a safe neighborhood and highly walkable. What we have issues with is too many stop signs. Go to the other side of the TGP and you see less signs, less congestions. More happy drivers.
11	Megan Green wants things her way so, it's useless to give suggestions. She only talks up what she wabts. Typical politics
12	I would like to see stricter rules as to who can rent properties in the neighborhood. Several properties on my street (3800 block of Potomac) are severely run down, trash everywhere, yards not mowed. Bui properties are the worsts
13	Enforcement is a problem -- police show up for an afternoon or etc. if an issue arises, then enforcement lapses again for months or even years. Also at issue is use of Arsenal by 18 wheelers, which should be using Chouteau, but now come into the neighborhoods and even the alleys. We have mines under some of the streets in Tower Grove South, and neither streets nor alleys are meant to take the weight of semis.
14	adding stop signs and speed bumps does not slow traffic, it only makes the bad drivers accelerate harder.
15	I think this is a great opportunity to install some of the traffic calming structures you mentioned. St. Louis needs much more of these tools to help provide a more livable and safe city.
16	We have consrtictions on traffic flow due to Botanic Gardens and Tower Grove park. Also factories and rail in the south. Traffic funnels onto Arsenal and backs up at stop signs and left off Kingshighway on to Arsenal as well. Lights and stop signs are poorly timed and placed on Morganford and Grand creating a slow pace, which increases driver frustration. This in turn leads to rude and fast driving on the few open stretches and residential streets.
17	Please do something with the data to bring about solutions

18	Yes, I'm not clear on the criteria being used in the ratings of 'important,' 'somewhat important,' etc. Are you asking if these things (e.g, congestion) are important issues that I think should be further analyzed or are you asking if they are personally important to me or are you asking if they are important problems that TGS needs to solved, etc. Each of these has different nuances. Unfortunately, the vague way the questions have been asked is going to get similarly vague responses, responses that mean different things to different respondents. I recommend strongly that you be more precise at the meeting next week. Chris Roman 40xx McDonald
19	Our neighborhood is named for the great park we have and making access to it easier and safer would benefit everyone. Stop signs don't seem to be enough protection for pedestrians, maybe adding two more stop lights between Spring and Tower Grove Ave would help pedestrians feel safe crossing the street. Bump outs at all intersections would increase safety.
20	Please resolve the dangerous Walk sign at Arsenal and MGF, park side. This is the cross walk into the park. When I'm on foot and halfway across the street drivers see the light go red with a countdown and assume Peds shouldn't be in the cross walk. I've almost been hit countless times.
21	I think that the person in charge of street signage and lights needs to drive around the city on a daily basis to understand the frustration. Plus many fly through stop signs without stopping, which is very dangerous.
22	While I don't know the solution... I want pedestrians and bikers to be safe in this neighborhood, and I'm really concerned that cars drive too fast and aren't watching for kids/bikers. We have had many close calls. I'm so glad you are doing this! Thank you!
23	remove bicycle lanes...riders do not use or obey traffic laws..they seem to like to disobey stop signs.parking on arsenal infront of homes should be limited to home owners/renters on the south side of street. park visitors should park in the park.
24	Many of the 4-way stops should be replaced with 2-way stops. Speed humps or speed tables should be used instead of stop signs to slow the transit streets (i.e., Spring, Gustine, Roger, Oak Hill, Bent and Morgan Ford).
25	Let me preface my comments by saying that Tower Grove South has so many things going for it in terms of walkability. The largest swath of TGS is unobstructed by major arteries. More importantly, anyone who lives within that swath is within walking distance of two business districts, a major park, two grocery stores, etc., etc. No other neighborhood in south St. Louis has quite that array walkable options, and only the CWE and maybe Downtown can match it citywide. These same characteristics make the area very bikeable, too. As a non-native St. Louisian who has lived in greater Tower Grove for a decade, I remain surprised by the extent to which all of the above is *not* factored into the real estate market. Tower Grove South is both perpetually attractive and somewhat underpriced. In short, I think that this traffic study should be approached from the perspective of confidence (something the city needs more of)—how to make a good thing great, to paraphrase the motto for the stimulus-funded work on South Grand. What I would like to see more of are measures to make it clear to everyone that this is a pedestrian-bike-automobile neighborhood and that the coexistence of all three is the norm. Period. More cross-walks (on all four sides of intersections) and bike lanes (especially on the major north-south streets) would be relatively affordable measures toward that end. Undoubtedly, cars will continue to roll through stop signs, bikers to speed through stop signs, and pedestrians to cross the street at inappropriate places. But even modest infrastructure changes (all of the above + a few speed bumps + the elimination of certain one-ways that encourage speeding) can help to nudge us to do the right thing.

26	some of the four way intersections are quite frankly crazy. the intersection of juniata and gustine for example. it is a four way intersection about... it is crazy. nobody knows when to stop or go.
27	Speed bumps on south grand would likely address these issues. Also, better routing of trucks for supplies, IE 18 wheelers trying to navigate South Grand and just parking in the middle.
28	I would like to see more police presence. I do not favor flower pots, or one way streets. I see people blow stops signs all the time and speed down my street on Wyoming. I wish there was a way to turn them in!!!!
29	I find the bike lanes to be incredibly inconvenient and dangerous as a driver. The traffic light at Magnolia and Tower Grove is particularly problematic. Since the left turn lane has been taken out, there is a huge back-up of cars and drivers sometimes swerve to go around those cars. A bike lane is not necessary at this location. Additionally, I think this survey misses the point. Stop signs and speed bumps are not a priority (at least in the TG Heights area). The big problem here is snow removal. The streets and alleys are at their most dangerous when they are covered in snow and ice. I would like to see my tax dollars spent on appropriate snow removal and salting, and not on slowing down the pace of car traffic.
30	No. But thanks for doing this
31	I'd like to see better enforcement of the leash law.
32	There are a lot of pot holes on the center cross near arsenal- actually in the round about too- that makes biking really dangerous/uncomfortable.
33	brighter, more reflective white paint in and around the TG area. Its very hard to see at night especially when raining. Painted crosswalks at all intersections within the neighborhoods; drivers tend to 'slow down - stop' through the intersectiones and pedestrians/ bikers areoften times forced into the traffic parts of streets in order to cross.
34	I would love to get the lights times from Magnolia to Arsenal. We sit at the light at Magnolia only to sit again at Arsenal. It would be easier to get into the neighborhood if those lights were timed. Also, Grand would be a more user-friendly commercial strip with pedestrian-triggered lights and more crosswalks. Getting across Grand at intersections with stop signs rather than stop lights can be terrifying! I would also like to fix the bike lane at Magnolia and Center Cross. If someone in a car is heading north and needs to turn left, they block all the traffic because the bike lane takes up the other lane. Letting cars go straight from both lanes would fix this problem. The bike lane could then start after the light. Also, coming into the park from Tower Grove, there should be two lanes that merge after the first stop sign, not before. We should make the right turn lane available to cars going straight. That is how people currently use that intersection anyway. Let's institutionalize it.
35	Fix the sidewalks in the neighborhood. It looks like there was an earthquake on nearly every sidewalk. Most sidewalks stick up 3-4 inches.
36	If we were to limit through access of the neighborhood through non-drivethrough-able steets (similar to other neighborhoods, this will bring pedestrian/bicycle/motorist safety way up. The crosswalks at Arsenal over to the park need to be quite a bit more recognizable and wider.
37	Overall, the traffic light timing and overall intersection management within and surrounding the 15th ward is abysmal. There is no excuse for the congestion that is experienced daily for those commuting to and from their homes. Beyond just a traffic study, positive, measurable work toward a resolution is expected.
38	Thank you for doing this Megan!

39	Can we get the crosswalks painted throughout the neighborhood or make them more of a presence so people recognize that they are there?
40	Teach pedestrians to use cross walks, and not cross 15 feet away from them, cutting through cars lined up at stop lights. Teach motorists to stop at crosswalks when people are crossing. Teach cyclists to ride with traffic, not against it (in both the bike lanes and the one way streets). Additional signage could possibly help people understand these things.
41	Thanks for your hard work! I'm sharing this survey right now.
42	Chokers, speed humps and speed tables makes cycling more dangerous. I believe the 'Idaho Stop'(treating a stop as a yield) is the best rule for city cycling and I'd like to see this rule spread. I see a lot of people cycling on the wring side of the street. As an experienced urban cyclist, I love cycling in Tower Grove south and have not have many problems.
43	Leaving Carpenter Library no parking for one space on McDonald
44	Traffic is not a problem in TGS. Putting up more stop signs, speed bumps, etc is a terrible idea and is a waste of taxpayer dollars. One suggestion would be to smooth out and repair the sidewalks. Pushing a wheelchair or stroller around the neighborhood is quite the challenge and a real deterrent for me from venturing out on foot.
45	This is not a well-designed survey. There are several problems. 1) The responses don't fit the prompts very well. For example, 'Pedestrians follow typical rules....' should have a 'strongly agree....strongly disagree' response set, instead of 'above average...below average.' 2) There should be a 'no opinion' response option. 3) Some of the prompts are mysterious (chokers? speed tables? dividers?). 4) Finally, what does it mean to be 'very concerned' about, for example, street lighting--I think it is quite important but I think what we have is adequate, so am I concerned or not? I'm not sure how you are going to to be able to accurately interpret many of the answers on this survey.
46	Consider eliminating the requirement to bicycles to stop at intersections while traveling West on Arsenal. Pedestrian crossings are the only cross traffic. It is not uncommon in other states for traffic signage/rules to differ from the rules of motor vehicles. For example, in a recent trip to Oregon I saw several signs reading, 'no left turn except for bikes'. Let's consider how to make cycling more efficient rather than subjecting cyclists to the same rules as 3000 pound steel death traps. That's like regulating firearms and Nerf dart guns with the same rules.
47	We desperately need sidewalks repaved. When my daughter was learning to ride her bike, she had to go in the street because the sidewalks were so bad. It's not ideal to be in the street when learning to ride a bike.

48	I think one of the most important things the neighborhood needs is a good east-west throughway north of Chippewa. There is a lot of traffic that goes east-west, and while Arsenal is the natural choice, there are also a lot of stop signs, a ton of pedestrians including a lot of children, and sometimes a ton of traffic. This really slows things down and pushes more traffic into the neighborhood. There's not a good solution here but I have been driving down Utah more and I think it can be widened and adjusted to facilitate more traffic flow, to reduce the burden on Arsenal in a way that will make Arsenal much safer for families and children using the park. If there's a way to make Utah go all the way through to Kingshighway, that would be great. The other thing I really want to encourage you to do is focus on perceptual design over enforcement design. As I'm sure you know, research shows that when streets are made narrower, traffic slows down, so trying to affect the appearance/perception of streets through width, etc. is I think much more important than putting in punishments like speed bumps, etc. The one exception might be speed tables that only really adversely affect cars that are going far too fast (e.g. 20 mph over speed limit). But if you create the impression that the street needs careful driving, then the traffic naturally slows to good speeds. The related but competing issue is that parking is starting to be a real problem in the neighborhood. Arsenal is a joke to park on when there are events in the park. I live on Juniata and when I get home from work late in the evening, I have now on several occasions found that I cannot park on my block because everybody is home from work and there is no more space. I think this is more of a problem because incomes in the neighborhood are going up and thus people have more cars, so I think it is really important not to implement solutions that will limit the number of parking spaces. Lastly, the biggest safety issue in the neighborhood is visibility, which I already talked about above. Partly due to parked cars it is often very difficult to see traffic far enough away to make safe driving decisions. I think this is the most important problem to solve, and while I don't know much about this so I don't have many good solutions, maybe we can make the center of the road significantly higher than the parking spaces so that it is easier to see over parked cars, especially SUVs. What I don't want to see in the neighborhood are more cops. I am tired of seeing my neighbors pulled over because of the color of their skin, and I don't want any of the police violence that has happened in surrounding neighborhoods to be brought into ours. Certainly, inviting in police to monitor traffic is just an invitation for them to bring in their racist attitudes and we have enough problems with racial tensions over the gentrification that is happening in this neighborhood that we don't need things inflamed.
49	In general I've seen more people just sail down streets with complete disregard for stop signs in this neighborhood than I have anywhere else in my life, no exaggeration. I've been *passed* on Roger by drivers going at least 40 and breezing through stop signs. My sense is that it might be better to designate on or two official north-south 'thoroughfares' somewhere between Grand and Morganford, and eliminate some stop signs on those north-south streets so that traffic can flow quickly. Then people won't feel the need to speed *through* the stop signs on the other streets. I know that there's an obvious problem -- no one wants more, faster traffic on their streets. But I think it might be better to direct through traffic to one or two streets, rather than to have the current laissez faire atmosphere.

51	I love love love living in the city. I have small children and plan to try and get them into gifted schools so I can stay in the city. I love Tower Grove park, it is unique and a real asset and so accessible. But the traffic problems in the neighborhood need to be addressed. The traffic needs to be slowed down, period. If that means it takes me longer to get home, and Arsenal gets congested, and there are more one ways making it more complicated, so be it. I don't think this is the TGS residents that are the problem, I suspect it is the thru-traffic trying to get south and east of the neighborhood. Issue number one is that traffic flow needs to be improved on Kingshiway so that so many people are not shunting to Tower Grove to pass through this part of town. Closure of Kingshiway bridge and more congestion at Grand have put added pressure on the Tower Grove Ave/park traffic flow. I think there should also be stop lights at both cross walks on the north and south end of the Tower Grove Ave center cross roundabout through the park-but this is probably not practical with a stop light at both Arsenal and Magnolia. As an alternative, I think a speed bump and/or cobblestones at each of these crosswalks would help a lot. If we get traffic to flow away from Tower Grove Center cross, that will make the park safer. Any other ways that can be done would help. I don't know how to get through traffic to take an east-west alternative to Arsenal, but Magnolia and Shaw have relatively much less traffic. There is not another through street until you get to Chippewa, which is probably why Arsenal is so heavily used. I hope this study will yield some ideas of how to improve safety in these areas.
52	Property owners who have rent are neglecting their surroundings: overgrown bushes, shrubs, and cosmetice up keep. It's causing the neighborhood to look run down. Gravois Plaza causes a lot of strays to hang around. A block off for traffic at Tholozan and Gustine would help.
53	The bike lanes on Arsenal contribute to congestion beyond what their use warrants. Will bikers who disregard traffic laws ever be held accountable?
54	lighting is important
55	I think that the Utah change from two way at Fyler to one way is confusing, and we see people head the wrong direction. I'm not sure that more one ways is the answer. I'd rather see that street made into a one way only.
56	I live in the 3900 block of tholozan and there are some apts on gravois that back up to my alley. The owners/managers seem to evict people on a very regular basis and just throw their belongings they leave in the alley by the dumpster (i.e. Dirty clothes small furniture, dirty mattress). Many of these things could be placed in the dumpster, such as small objects and clothes as they are not picked up by the city as part of large object pick up Once a month. Many of these things are gross and dirty and will just sit for months. Trash bags have broken open with trash a over alley etc. With the large objects such as mattress, they don't even stack them neatly upright. They just throw them wherever often blocking the alley. I have been known to clean up the alley as I am a home owner and feel this decreases my property value. I have also called CSB numerous times over the last 5 yrs, they are always helpful but I've grown tired of monitoring this. I have a ft job and it's not cleaning my alley!
57	Would be happy to see additional traffic enforcement by the police department in the neighborhood.

58	Many people use TGS, most often Gustine, as a way to avoid traffic on Grand. Traffic-slowing on Gustine will help prevent people rushing down side streets to get to Gustine as a route alternate for traffic on Grand.
59	The intersections on Gustine are kind of dangerous because the east-west streets don't go straight across. The surface of Arsenal is a mess, especially at night when it's wet, because of the seams and the paint that was scraped off.
60	I think the pedestrian friendly nature of the 15th Ward and in particular the business area on S. Grand is extremely valuable to the neighborhood. It separates us from many other neighborhoods by closer proximity to important places including groceries, restaurants, public library, and churches. I would encourage the neighborhood to continue to emphasize this tradition. I recommend restricting additional driveways and curb cuts for fast food restaurants, gas stations, etc. They can screw up car traffic with many cars coming in and out and make walking the sidewalk less friendly. The worst example of this is just north of the Grand/Gravois intersection where cars are going every direction to enter and exit the White Castle, gas station, Taco Bell, Walgreens, and KFC. It's messy. When it comes to parking, I think a certain amount of difficulty finding a parking spot is a sign of a vibrant neighborhood. I personally don't think the neighborhood needs parking permits or more parking lots. I live on the first block west of Grand and never have any trouble parking. I wish certain people didn't speed as fast through the neighborhood streets. I've seen speed humps/tables (not bumps) work well for this problem in other cities. I am so happy that the 15th Ward does not have many closed streets (schoemehl pots). It helps make traffic more adaptable and flow better. It's more democratic. Please don't close any streets. I do not support the closure of side streets along Gravois, as has been suggested by Modot.
61	Speeding is the main issue- with the long east/west blocks people who try to avoid stop signs on Arsenal go way too fast through the interior of the neighborhood. I am in favor of many of the calming measures, aside from speed humps and dividers. Please no speed humps. Also, please no Schoemehl pots and closing streets/intersections. As a bicycler, my main concern is people running stop signs. The bike lanes on the perimeter of the neighborhood are great.
62	whether I rent or own is irrelevant to this survey as is the question about park maintenance. This is about streets, not parks.
63	Can someone please bring up the issue of congestion on Vand. due to Kings. being closed? The timing of the lights during rush hour is horrendous. The backup on Vand. is so bad that it takes close to 20 minutes just to get on 44 during rush hour. Ain't nobody got time for that! :)
64	Is it feasible to have a dedicated traffic officer in tower grove south? short or long term?
65	yes, lights need to be longer to accommodate pedestrian and traffic.
66	Stop signs seem to be placed at random. Some streets have a stop sign at almost every intersection, while others have them much less frequently. Therefore, if you're not familiar with the street, people stop where they don't need to and run through stop signs. A more obvious pattern would make sense (every intersection, every other intersectin, etc.).
67	Landlords need to be held more accountable for the upkeep of their properties.
68	Treat commercial streets separate from residential streets
69	Please do not implement 'One Way' or dead-ended streets. TGS has a wonderful street grid and should maintain this.
70	I worry the safety of children outside playing when cars speed down my street.

71	Too often drivers speed along Roger, Oak Hill, Spring and Gustine. More often than not, drivers go through stop signs along the cross streets. This is a daily problem. The same happens at traffic lights. U-turns occur often. My other huge concern is the danger in driving along any of these roads when it snows or ice as they are not cleared or salted. Even if they could just salt and clean the intersections it would help. Often one cannot stop at intersections due to icy conditions.
72	More crosswalks should be added to get across Arsenal into the park West of Center Cross. Signs should be placed at the crosswalks informing drivers to stop when pedestrians are present.Bike lanes should not be driven in. They are, quite frequently.
73	It would help if police would stop blowing through stop signs, sets bad example.
74	All of the all way stops within the neighborhood have been there for more than 20 years without review. The reasons for their initial installation may no longer exist. All should be reevaluated by city ordinance criteria or do away with the city ordinance.
75	I know there are complaints about parking for businesses but this is a common complaint in any commercial area. I think better signage and co-sharing parking lots would help the merchants.
76	Coukd bumpouts protect these intersections to allow better vision by preventing parking so close
77	Thanks for doing this. I really appreciate that you're using technology to survey people and accumulate statistics and opinions.
78	People are parking in front of hydrants a lot and way way way too close to corners. What about painted curbs as a reminder?
79	Disliking of the bump outs on grand and the bike lane on arsenal. They all can be removed.
80	Rodger and oak hill have become drag strips
81	Not sure the reason when heading east on Arsenal you cannot makes left onto Kingshighway??? People do it all the time anyway . The traffic light also is not long enough.
82	Speeding is an issue.
83	explore speed bump options
84	The map above has quadrant (3) labelled as 'southeast' and (4) labelled as 'southwest', when in fact they are the opposite. I live in the quadrant labelled (3), which is the southwest quadrant.
85	All one way streets need to be reviewed... They do not make sense... In most major cities one way streets alternate... There is no logic to the one way streets in tower grove south.
86	Don't turn this into blocked streets and speed bumps everywhere. Let's not become the central west end or the suburbs.
87	People need to use crosswalks and other measures on Grand. There is too much j-walking
88	Would like to see more LED street lighting
89	I want Tower Grove South open and friendly for everyone, and especially pedestrian and bike friendly (not everyone has a car, and I don't want to live in a neighborhood that makes that presumption.). For me, this means sidewalk repair and better street lighting. also do not wish to see any Tower Grove streets blocked from access to or from Grand.
90	TOO MANY STOP SIGNS thru the neighborhood and crossing Arsenal into the park. Arsenal crossings should be signalized with real pedestrian setups.
91	Traffic on Grand is still way too fast. The lights are timed to allow cars to speed through the area. Pedestrian crossing signals don't work. Its loud and depressing. Sharrows are inappropriate in areas where traffic is faster than 20-25mph. Grand is definitely too fast for sharrows and is therefore unpleasant and dangerous to bike on.

92	These surveys need to be worded more clearly. The headlines and options you choose from don't always make clear what is important or not important, etc... How can we get good data from this when some people will be 'Very Concerned' about bike lanes because they want more and others will be 'Very Concerned' because they feel bike lanes are 'taking over their streets.'
93	Don't let people be too mean to bicyclists! We are on bikes - they are in cars. It's not the same disobeying of traffic laws - both are bad, but one is a lot more deadly. Also I've been hit by a car in TGS on my bike... never been hit by another car.
94	Is it possible to add a four way red light cycle to intersections for all direction pedestrian crossing instead of the crossing with traffic method we have now. Cars making left turns are always at odds with pedestrians crossing when they are supposed to cross.
95	Need to put children - speed limit signs. Especially one way signage at Roger near coffee shop.
96	I sense a very negative attitude about bike lanes from some people vocal in the community. I do not use them regularly, but support them. I think it would be helpful to introduce research from other cities about the positives (and negatives) about bike lanes. Also education about Idaho Stops for cyclists and the safety benefits of this method vs. cyclists conforming strictly to automobile traffic rules. It benefits both drivers and cyclists.
97	The bike lanes on Arsenal were a waste of time and money. Cyclists use the main lanes anyway and it impedes traffic. I would also suggest cyclist be ticketed for disobeying traffic rules as motorists are.
98	I actually think it may help to remove a few stop signs on Spring just like Gustine has. It is very frustrating to drive down Spring to Gravois! I think that is why people run the signs.. Otherwise, maybe speed bumps would help.
99	Measures to protect the neighborhood from crime is more important than traffic issues. I don't think traffic issues are a problem in the neighborhood.
100	I am quite concerned with speeding in blocks that all move in the same direction. This also leads to no or incomplete stops.
101	Grass in medians should be used as community space with good lighting. Good lighting there and elsewhere will also improve safety
102	Would love to have more protected bike lanes. I see Motorcycles/Cars driving in bike lanes ALL THE TIME. Does not make for safe bike lanes. Also, seems like there should be a more consistent stop sign pattern. it's ok if you live in the neighborhood and know where they are, but it is confusing for visitors as some cross streets have stop signs others don't.
103	i would like to see road humps go in. I just returned from Dallas, where road humps are used very effectively.
104	How can we better educate citizens about bicycle regulations and change the attitude to one of accepting bicycles as a commuting means of transportation as opposed to the outdated image of for recreation only?
105	Many city owned and operated vehicles, including parks dept., police, and others openly speed through the neighborhood - shouldn't they be leading by example. Also, some of the most dangerous and blatant disregard for speed limits and stop signs is done by school buses
106	Let's not have any streets blocked off, like in Shaw. That makes it feel desolate.
107	Traffic is fine. Work on CRIME!

108	One way streets south of Gustine are confusing. Maybe switch one of them back so that drivers and bicyclists don't have to travel 3, sometimes 4 blocks out of their way to get from one end of the neighborhood to another
109	I commute in and out of TGS and as more streets get lane diets it's getting harder to use arterial streets to get to the interstates. By forcing ne to use neighborhood streets, I'm becoming part of the problem. Moving around the neighborhood on foot or by bike is nice, but getting and and out of the neighborhood is important. Lots of 'outsiders' come to the area to shop and dine and that very important to our very local economy. If it's difficult to get here or leave visitors may not visit as often.
110	More education about the rights of bicyclists. I hear lots of, for lack of a better term, 'driver privilege'. There are more cars than bikes, cars are bigger and more destructive potentially, they speed more than bikes, and they roll through stop signs just as often. If cyclists breaking traffic laws are a problem, drivers doing so are a bigger problem by an order of magnitude b
111	Most people seem like safe drivers in this neighborhood. I don't think any extra steps are necessary in terms of adding 'traffic calming measures' honestly those are awful and I don't want to live in a place where they are used. I feel like there is only one group that makes me feel unsafe as a pedestrian and as a driver of a vehicle and that's Domino's drivers that are speeding and driving poorly everywhere I see them as they leave the store on Grand. If you address that specific problem I feel my Tower Grove traffic problems are over.
112	Thanks for doing it. I am renting to determine if I should buy in the neighborhood.
113	Get rid of most of the 4-way stops in the neighborhood. Use speed tables (rather than stop signs) on streets such as Spring and Morgan Ford to moderate vehicular speed. People can ignore stop signs, but must slow for speed tables and humps.
114	Use road diet, chicanes and roundabouts vs. stop signs.
115	I am in favor of a safe walkable and bikeable neighborhood. HOWEVER, the area also needs some roads that do NOT aim to slow traffic down. Not only do we need to create a safe environment in the neighborhood, we also need to be able to exit without the congestion on local roads that we now face.
116	Add signs indicating Bikers on Roger, Gustine, and Spring
117	A police presence on bicycles would be welcomed. Cars roll stop signs on Aresenal all the time and forget that pedestrians crossing have the right of way. With people coming and going from the park often, there is a huge safety risk, and without a police presence, nobody cares to follow proper safety rules. They should also create cross walks on each side of an intersection, they only have them at one end in many cases.
118	Please do something to help stop the running of stop signs by motorists and bicyclists not obeying traffic laws.
119	MORE RECYCLING BINS IN THE ALLEYS
120	I think the bike lanes are a problem, they are not used by very many people, but this city seems to be more interested in making the few happy rather than the many. the people on bikes do not obey the traffic laws, and have nearly plowed into me at an intersectiion because instead of stopping at the stop sign, as I took my turn they peddled faster instesd of stopping. I think bikers should be given tickets for not obeying the traffic laws, especially if their going to share the roads with motor vehicles.
121	One way streets that point in toward each other make traffic flow counterintuitive and confusing. Our neighborhood is harder to navigate because people can't get off of Roger once they are on it.
122	Lots of drivers ignore or roll through stop signs and race through yellow lights.
123	Bicyclist almost never obey stop or yield signs. They are still a minimal portion of total transportation, but have captured way too much real estate still needed by cars and buses.

124	No makeshift roundabouts using concrete barriers. No street barricades. What about increasing tree plantings in tree lawns. Studies show they are effective in slowing traffic. If new dividers and bumpouts are installed, consider planting native plants for an added calming effect and increased storm water management.
125	The International Institute needs to teach the Bhutanese Nepalese when and how to cross streets where there is a traffic light. Most just walk through the 'Don't Walk' signs and seem to not understand. Refugees have a high number of accidents and incidents. Refugees need to be trained and not allowed to drive with out license and insurance.
126	My only other concern is neighborhood parking in the South Grand restaurant area & bulk trash accumulating in the alleyways, which tend to lead to traffic congestion & nearby neighbor frustration. Overflowing dumpsters is also a concern; can we call the city or the dumpster owner (especially Republic Services for the dumpsters in the 3600-block linking Wyoming to Connecticut). Lots of overflowing trash & bulk disposal outside of dumpsters leads to difficulties navigating the alley to access my garage & also causes problems when departing & arriving on my bicycle.
127	My movements around Tower Grove South are probably 60% as a pedestrian and 40% in a car. Being a pedestrian in Tower Grove South is actually pretty good. There are sidewalks almost everywhere (although some are in disrepair, for example on Fairview) and traffic is light enough (if we exclude Arsenal and Grand) within TGS that I've never felt in danger. At least not in danger of being hit by a car, as long as I pay attention to what is happening around. There is a lack of crosswalks, but again since traffic isn't huge, it's not a problem in most places.
128	Outside of area, but replace speed bump in traffic circle at park with speed hump or speed table. Also one way at center cross and south park drive should be permanently and more clearly marked. The amount of time and energy ranger spends chasing 'wrong wayers' would easily pay for striping/ signage.
129	Our neighborhood has the worst sidewalks and the worst pedestrian crosswalks. They don't exist..What's up with that? Why do the bicyclists get everything?

Appendix D: First Public Meeting Summary

Memorandum

October 26, 2015

Attn: City of St. Louis, Board of Public Service
RE: Ward 15 Traffic Study: Task 1.2 Deliverable – Neighborhood Meeting Summary

In conjunction with Alderwoman Megan Green, CBB planned and attended a neighborhood meeting for Ward 15 residents to discuss our current traffic study efforts within the neighborhood. The process of planning for the meeting, as well as a summary of the meeting and information presented at the meeting is below.

Meeting Preparation

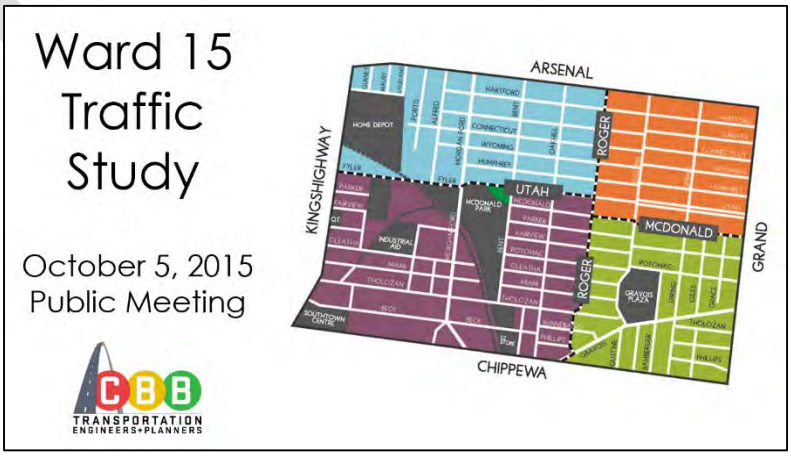
Alderwoman Green worked with CBB to select a date and location (Monday October 5, Carpenter Branch Library) for the ward 15 public meeting. Prior to the meeting CBB developed an online survey for residents to take as a part of the study efforts. Alderwoman Green, with other neighborhood representatives distributed door hangers throughout the neighborhood with the public meeting information, as well as the survey link. Current traffic complaints that were already submitted prior to the study, were distributed to CBB for meeting preparation and survey finalization. CBB developed a presentation to review the study process, as well as activities for participants placed around the room, and developed comment cards to be filled out on site.

Public Meeting: October 5, 2015, Carpenter Branch Library

CBB set up the room so that residents entered to a registration table with an information handout about the traffic study, as well as signed up for a record of how many attended the meeting. Attendees also picked up comment cards here and any necessary items for activities to be later completed in the evening. The meeting started with Ms. Carrie Falkenrath, CBB, presenting on the process for the Ward 15 traffic study.

- The Presentation

  Carrie started by highlighting that CBB was working to complete a neighborhood level access & circulation study aimed at enhancing traffic and pedestrian safety. She outlined the goals to (1) reduce traffic volumes and speeds on local streets, (2) improve pedestrian safety, and (3) improvements to arterials and collectors within the study area. Carrie moved into the process highlighting the four steps: (1) Stakeholder outreach, (2) Field Data, (3) Evaluate Conditions & Develop Recommendations, and



Presentation Intro Slide

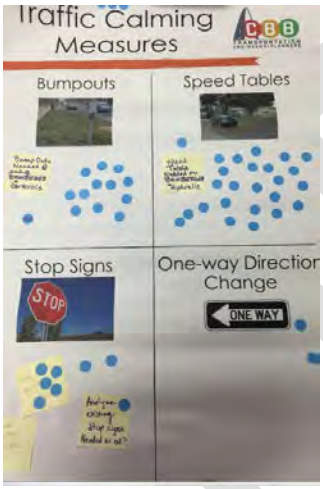
(4) Summarize Recommendations and Prepare Documentation. The next part of the presentation was dedicated to information and ideas we had already received from the neighborhood. This section of the presentation moved into a lot of discussion of various frustrations and concerns residents currently have. After a lengthy discussion, we reminded participants that comments cards were available and urged them to participate in our activities planned for later in the evening. Carrie indicated the process moving forward and turned it over to Ms. Jacque Lumsden, CBB, to outline the participation activities planned for the evening.

- The Activities

CBB planned three activities for meeting attendees. These activities were placed on 3 x 5 posters in the back of the room.

Completed Map Exercise

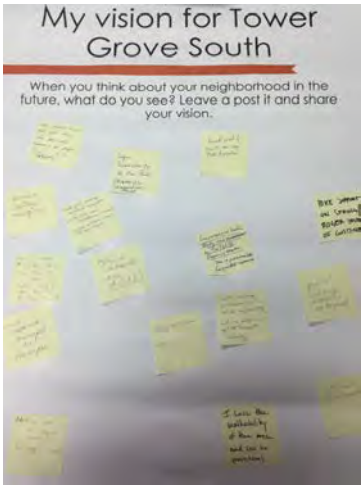
- *Aerial Maps:* CBB laid out five aerial maps of Ward 15. We placed post it notes, sharpies, stickers and other materials on the table for residents to note specific concerns or ideas. Attendees were able to notate specific intersections or corridors where they had concerns, as well as put notes about any ideas they had for various areas of the neighborhoods. CBB documented the maps as a part of the public feedback.



Completed Dot Exercise

- *Dot Exercise:* CBB had two boards with four different traffic calming techniques (8 total techniques) listed. When residents entered the meeting they were given three blue dots. With these dots, residents were asked to indicate the traffic calming measures they would be most interested in seeing within their neighborhood. They could put all dots on one technique they really liked, or they could choose to not place any dots on the board. The eight techniques listed on the boards were (also included on the survey): speed humps, roundabouts, chokers, dividers, bump-outs, speed tables, stop signs, and one-way direction change. CBB compiled this information in a spreadsheet. Some post it notes were placed on the board with alternate ideas that were noted as well.

- *My Vision for Tower Grove South:* CBB chose this exercise because a transportation system can greatly affect how a community grows. In addition to specific traffic concerns residents have, CBB wanted to understand more about the quality of life within the community and what residents feel is important to them. This information was documented with the public meeting feedback.



Completed Vision Exercise

- *Comments Cards and Surveys:* CBB had hard copy comment cards and surveys available for residents to fill out at the public meeting. The surveys were entered online and the comments from the comment cards were compiled with the public meeting feedback.

Appendix E: Second Public Meeting Summary

Appendix F: Data Collection Plan

Task 2.0 – Field Data

The purpose of task 2.0 is to collect field data to better identify issues within the Ward, and locate high priority areas that may warrant future investigation. CBB will collect data during peak periods, as well as traffic volume and speed data. Additionally, CBB will take an infrastructure inventory of specific areas of concern as indicated by the survey and public meeting feedback. Below is a list of areas where field data will be obtained, as well as what type of data based on initial study findings.

Peak Observations – 2.1

…peak period observations of traffic and pedestrian activities within the Study Area during the morning and afternoon peak periods of commuter traffic on a typical weekday, the arrival and dismissal peak periods of school traffic, and the midday peak period of a typical Saturday.

Locations:

- Grand & Humphrey (pedestrians)
- Morganford & Hartford (safety)
- Grand between Utah & Gravois (pedestrian issues/Schnucks access)
- Roger corridor (stop signs)
- Sight Distance
    - Hartford & Morganford
    - Morganford & Wyoming
    - Gustine & Juniata

Traffic Data – 2.2

…collect traffic volume and speed data at selected locations during the peak periods - 7:00 to 9:30 a.m. and 2:00 to 6:00 p.m. on a typical weekday as well as 12:00 noon to 3:00 p.m. on a typical Saturday.

- *manual counts: <6 locations*
- *machine counts: <6 locations (<7 days)*
- *spot speed studies: <2 locations (<2 hours)*
- *origin and destination studies: <6 locations during the 4 weekday peak hours (?)*

Locations:

- Manual Counts *(EDSI)*
    - Arsenal & Morganford (pedestrian issues)*
    - Arsenal & Spring (pedestrian issues)*
    - Grand & Hartford (pedestrian/cut-thru issues)*
    - Gustine & Juniata (offset intersection)*
    - Arsenal & Grand (bike lane operations)
    - Grand & Utah (pedestrian issues)

- Origin-Destination (cut-thrus) *(DMA)*
    - Gustine* (S of Arsenal, N of McDonald)
    - Juniata* (W of Grand, E of Morganford)
    - Hartford* (W of Grand, E of Morganford)
    - Arsenal
    - Roger

- Speed Studies & automated counts *(EDSI)*
  - Gustine* (hoses north of Hartford, before alley)
  - Hartford* (hoses east of Morganford)
  - Juniata* (hoses west of Grand)
  - Roger* (hoses north of McDonald)
  - Arsenal

Infrastructure Inventory – 2.3

…a high-level "overview" of the infrastructure in the Study Area (noting the presence, configuration and general dimensions of roadways, sidewalks, bike lanes and pedestrian ramps) making use of Google Earth and existing electronic sources, such as GIS databases, to identify the general state of the infrastructure. (CBB)

…the general inventory will be supplemented by more thorough field measurements of up to eight locations (segments) or intersections in the study area which will include the measurement of critical infrastructure dimensions; identification of ADA compliance and sidewalk conditions (using a smart level on select ramps and sidewalks); and identifying on-street parking provisions, speed limits, traffic control, pavement markings and drop-off/pick-up areas.

Locations:

- Overview map – entire ward (within Grand, Gravois, Kingshighway, & Arsenal) *(CDI)*
  - Note one-way street segments
  - Signalized intersections
  - Pedestrian signals (note w/without push-buttons)
  - AWSC & TWSC intersections
  - Pedestrian crosswalks
  - Active speed signs
  - Sidewalk locations
  - Bike lanes and/or bike routes
- Phase 2 – collect more thorough field measurements at specific locations (TBD) *(CDI)*

Appendix G: Traffic Calming Strategies Summary

The South Central Regional Council of Governments; June, 2008

(Please note that cost estimates in this table may not be applicable for the St. Louis region in Year 2015).

Measure	Description	Issue	Best For	Not Used For	Costs	Considerations
Speed Hump	Raised area of roadway typically 12 to 22 feet in length	Speed Reduction	• Neighborhood streets	• Arterials, highways, other main roadways	$1,000 - $12,000 each	Can interfere with transit, snow plow, and emergency vehicle operations. Speed humps increase roadway noise and wear on vehicle suspensions. Highly visible warning signage required.
Speed Table	Elongated speed hump 22 feet in length or greater	Speed Reduction	• Neighborhood streets	• Arterials, highways, other main roadways	$2,000 - $15,000 each	Can interfere with transit, snow plow, and emergency vehicle operations. Speed tables increase roadway noise and wear on vehicle suspensions. Highly visible warning signage required.
Raised Crosswalk	Elongated speed hump which features a flat top at the same elevation as adjacent sidewalks	Pedestrian Safety Speed Reduction	• Areas where pedestrian traffic takes priority over vehicular traffic	• Arterials, highways, other main roadways	$2,000 - $15,000 each	Raised crosswalks can decrease pedestrian caution before stepping into roadway.
Raised Intersection	Similar to raised crosswalks, except the entire intersection is at sidewalk grade	Pedestrian Safety Speed Reduction	• Areas with heavy pedestrian traffic, such as shopping areas and college campuses.	• Arterials, highways, other main roadways	$50,000 - $200,000 each	Raised intersections provide a barrier-free crossing for pedestrians and slow all vehicles, including emergency vehicles and transit buses.
Rumble Strip	Raised buttons or grooves closely spaced on the roadway travel lane or shoulder surface to create noise and vibration	Speed Reduction	• Transitions between higher-speed and lower-speed sections of a roadway	• Areas that are highly noise sensitive	$7 - $10/foot	Only effective through the noise and vibration they create. They are not favored in residential areas due to noise impacts.
Textured and Colored Pavement	Used to delineate an area with high pedestrian activity	Pedestrian Safety Speed Reduction	• Areas with heavy pedestrian traffic, such as neighborhood shopping areas and college campuses	• Arterials, highways, other main roadways	Moderate to high	Maintenance and life cycle should be considered when selecting materials. Only certain techniques allowed on state roads with municipal - state agreement.
On-Street Parking	Parallel and angled parking can be used to narrow travel lane width and provide a buffer between motorists and pedestrians	Pedestrian Safety Speed Reduction	• Village environments • Wide roadways	• Arterials, highways, and other main roadways	Low	Angled parking creates more right-of-way impacts than parallel parking, but also accommodates more parked vehicles per block. Drivers have reduced visibility backing out of angled parking spots, posing a greater accident risk.
Modern Roundabout	A modern roundabout is a large raised island in the center of an intersection. All entering traffic circles to the right and yields to vehicles already in the roundabout. Left-turning movements are eliminated. They are used in place of traffic signals at high volume arterials.	Crash Reduction	• Intersections on high volume arterials with a history of high crash rate or long queues • Intersections with more than 4 approaches • Intersections with heavy left-turn volume	• Smaller or low-volume intersections • Intersections with disproportionate volume on approaches	$80,000 - $800,000 each, depending on diameter, right-of-way, number of lanes, landscaping	Modern roundabouts require more right-of-way than traditional intersections. This additional right-of-way may require eliminating existing on-street parking. They require more maintenance than traditional intersections, and are more difficult to navigate for large vehicles such as fire trucks and transit buses.
Traffic Circle	Much smaller than modern roundabouts, traffic circles are installed inside existing intersections and require motorists to slow down to navigate around them.	Speed Reduction	• Neighborhood streets that have a history of high speeds and high crash rates at intersections	• Multi-lane roadways	$6,000 - $12,000 each	Can provide a gateway or neighborhood identity.
Narrowed Lane	Roadway lanes are narrowed from typical cross-sections of 12-15 feet to 11 or fewer feet per lane through the use of painted lane markers, new parking lanes, new bicycle lanes, or relocated curbing.	Speed Reduction	• Minor arterials • Collectors • Local roads	• Heavily traveled or high speed roadways	$1,000 - $10,000/ mile	Narrowing traffic lanes make slower speeds seem more natural to drivers and less of an artificial imposition compared to other physical calming treatments. Adequate width for emergency vehicle access must still be provided.

Measure	Description	Issue	Best For	Not Used For	Costs	Considerations
Neckdown/ Bulb Out/Curb Extension	Briefly narrow the roadway by extending the curb at intersections or mid-block locations	Pedestrian Safety Speed Reduction	• Areas with pedestrian traffic and wider roadway cross-sections • Village environments	• Arterials • Narrow streets	$2,000 - $20,000 each, depending upon size and material	May require eliminating some on-street parking and may hinder street plowing and sweeping operations
Chicane	Sets of two or more alternating curb bulb outs or extensions that narrow and realign the roadway	Speed Reduction and Cut-Through Traffic	• Neighborhood streets that experience high speeds or heavy cut-through traffic volume	• Arterials, highways, other main roadways	$10,000 - $30,000	Concrete chicanes complicate street maintenance and drainage and may require additional right-of-way to construct. Chicanes created through pavement striping are cost-effective and easy to implement. On-street parking can be alternated from side-to-side along the street.
Traffic Islands and Medians	Concrete or landscaped islands and medians slow travel speeds by narrowing lanes and also improve pedestrians accommodation by providing a pedestrian refuge at crossings.	Pedestrian Safety Speed Reduction	• Roadways with wide rights-of-way that would benefit from slower speeds and improved pedestrian safety	• Already narrow roads, or roadways with frequent driveways	Varies depending on length, materials, and right-of-way availability	Islands and medians can provide a visual enhancement or gateway to promote neighborhood identity. They may reduce parking and driveway access and may increase motor vehicle conflicts with bicycles.
Landscaping	The use of plantings such as trees to visually alert drivers to slow down	Speed Reduction	• Residential or village environments		Moderate to high	Maintenance requirements
Gateway	Signage, landscaping, or art that alerts drivers of upcoming village, neighborhood, or danger	Speed Reduction	• Residential or village entrances	• Highways	Varies	An excellent opportunity to add character or identity to a community.
Stationary Radar Sign/ Speed Display Board	Dynamic signs that advise motorists of their speed and the posted speed limit	Speed Reduction	• Any roadway from neighborhood street to limited-access freeway where observed speeds consistently exceed the speed limit - they are particularly popular in school zones.		$5,000 - $15,000 each	Radar signs have proven to slow down traffic, even years after their initial installation. They are particularly effective on high volume arterials and highways, where physical measures would restrict traffic flow.
Pavement Marking	Painted markings or warnings on roadway surface	Speed Reduction	• Areas where signage alone can benefit from additional warning reinforcement		Low	Easily wears off and requires regular maintenance
Signage	Standard or customized signs alerting drivers; often complements other traffic calming tools.	Speed Reduction	• Areas where inadequate signage is present		Low (varies depending on type and amount of signage)	Limited traffic-calming effect when used alone - complements other traffic-calming strategies
Edge Treatment	Raised curb installations signal a lower design speed to drivers	Speed Reduction	• Areas with adequate right-of-way	• Highways or anywhere the curbing would create a hazard.	Moderate to high	Raised curbs allow placing trees and street furniture closer to the roadway, producing an additional calming effect.
Reduced Corner Radii	Corner curb is squared off requiring motorists to slow to navigate a tighter turn with a smaller radius.	Pedestrian Safety Speed Reduction	• Typically used in conjunction with other calming methods in areas with high pedestrian activity.	• Arterials, highways, other main roadways	$2,000 - $20,000	The reduced turning radius can limit truck and bus turning, complicating emergency vehicle, delivery truck, and transit operations. Careful design is required.