Lyon Park Neighborhood Transportation Plan

Prepared for:
The Lyon Park Citizens Association

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Baker

August 2006

Background

The Lyon Park neighborhood sits just south of the Clarendon area of Arlington County. Surrounded on two sides by Arlington Boulevard and bisected by Washington Boulevard, the neighborhood has excellent access to surrounding neighborhoods, facilities and commercial corridors. Unfortunately, this convenient access also allows unwanted cut through traffic to use residential streets as short cuts through the area. Furthermore, Washington Boulevard, a significant principal arterial, cuts through the middle of the neighborhood, dividing the neighborhood and creating a barrier for pedestrians and bicyclists making their way through the neighborhood. Additionally, the design of Washington Boulevard makes it easy for traffic to speed through the neighborhood, further endangering pedestrians and those who live along the Boulevard. These and other traffic issues trouble residents of Lyon Park and thus the Citizen's Association hired Baker to review their concerns and to prepare a plan to better manage traffic within the neighborhood. The objective of this plan is to provide traffic calming measures and other recommendations to manage the problems specifically noted by the residents and to also provide a framework or "toolbox" from which residents can create their own solutions for future traffic problems as they arise.

Immediate Concerns

Members of the Lyon Park Citizens Association provided Baker with a list of immediate traffic concerns that currently afflict the neighborhood. These concerns were

1. the 4-way stop at Highland and 9th,
2. traffic speed and volume on Highland and 9th streets,
3. sightlines at Garfield and 9th intersection,
4. various issues with Washington Boulevard,
5. traffic loitering and truck turnaround on 4th Street at 7-11 convenience store,
6. pedestrian safety and sightlines at Pershing and Washington Boulevard intersection,
7. parking issues at Tallulah and traffic speed on Daniel Street,
8. lack of pedestrian crosswalks across Washington Boulevard and 10th Street,
9. problems with signalized pedestrian crossing at 3rd and Cleveland St,
10. traffic along Arlington Boulevard,
11. traffic speed along Pershing Drive and problems at Barton Street Intersection and
12. areas in Lyon Park that do not have sidewalks.

Figure 1 shows the location of most of these concerns and the extent of the Lyon Park neighborhood. It also clearly shows the barrier that Washington Boulevard creates through the neighborhood. In reviewing these concerns and

recommending remedies, Baker endeavored to adhere to the following core values outlined by the Citizens Association:

1. Pedestrians have first priority, then cyclists, then motorists;
2. No neighborhood street shall be burdened with more than its fair share of traffic, nor shall any one street be eased of traffic at the expense of another; and
3. All motorists, regardless of their departure or destination, are expected to drive at speeds safe for pedestrians and cyclists, including children, on all streets in Lyon Park.

Figure 1: Lyon Park Neighborhood Study Area

The following recommendations are based on the understanding of problems outlined in each section, field review of the areas noted and the best practices of traffic calming. The study team did not collect traffic volumes or accident data, conduct capacity analyses or other detailed traffic impact analyses.

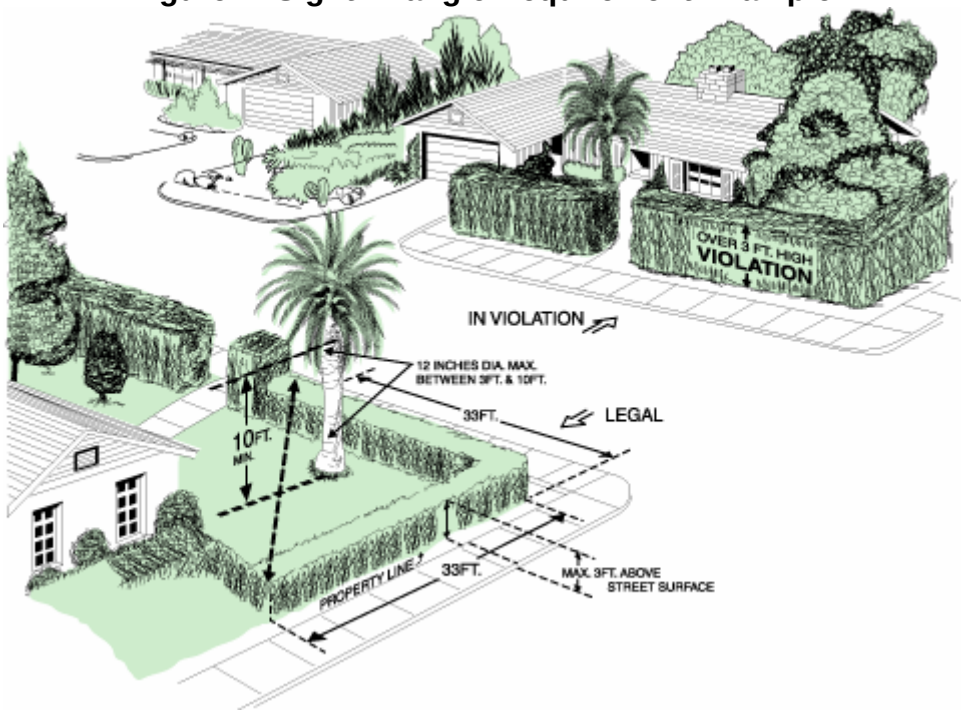
Toolbox

There are many traffic calming measures that can help manage traffic in neighborhoods like Lyon Park. The following outlines ten general guidelines for good neighborhood traffic management.

1. Maintain Proper Sightlines at Intersections

Sufficient sight distance at intersections is critical for drivers, cyclists and pedestrians. Proper sightlines at intersections ensure that all users of the roadway and sidewalks can see potential hazards prior to entering the intersection. The main impediments to sufficient sightlines at residential intersections are vehicles parked too close to intersections and obstacles, such as shrubbery, located too close to corners. To combat these problems, the County should forbid on-street parking within 20 feet of intersections and the neighborhood or County should require proper maintenance of private vegetation near intersections. No vegetation within sight triangles should be more than two to three feet above the grade of the street surface. Sight triangles are the areas at the corners of intersections through which a driver must look to see traffic on an intersecting street. Figure 2 shows an example of how sight triangles work. By limiting the height and width of obstructions within 20 to 30 feet of intersections, sight triangles ensure that drivers can see other vehicles approaching the intersection. In the example below, the regulations forbid shrubbery higher than 3 feet within 33 feet of an intersection and they also forbid other obstructions with more than 12 inches of diameter between 3 feet and 10 feet in height.

Figure 2: Sight Triangle Requirement Example



From "Visibility Requirements for Landscaping Corner Lots", City of Phoenix, AZ, http://phoenix.gov/STREETS/visible.html

A clear example of where this problem exists is along 7th Street in Figure 3. The shrubs along the side of the street are a bit too tall and significantly reduce visibility for drivers, bicyclists and pedestrians as they approach the intersection. Arlington County does not have specific guidelines regarding sight triangles at intersections. County code does require that all property owners maintain their vegetation such that it does not obstruct or impair pedestrian or vehicular traffic (§10-15). The American Association of State Highway Transportation Officials (AASHTO) recommends about 60 meters of visibility 5 meters back from the intersection for a minor approach. This is much different from the above recommendations as it would require significantly more visibility at intersections than is possible with on-street parking in a neighborhood setting. Thus, Baker recommends regulations similar to those in the figure above as they are similar to those in many jurisdictions around the country and more suitable to residential neighborhood streets.

Figure 3: Shrubs Can Reduce Visibility

2. Straighten Intersections Where Possible

Skewed angled intersections can be unsafe for drivers and pedestrians. Since Washington Boulevard passes through Lyon Park at an angle to the grid pattern, many intersections with smaller residential streets are not at right angles. These skewed angles make turns harder in certain directions but much easier in others. This can make it easy for traffic to turn off Washington quickly and speed through residential streets and it can also make it hard for traffic coming out of the neighborhood to turn onto Washington Boulevard. Thus, were possible and where problems exist, it is desirable to create right angle intersections with Washington Boulevard. Recently, the intersection of North Edgewood Street and Washington Boulevard has been realigned. The resulting intersection is significantly safer and forces drivers turning right onto North Edgewood from Washington to slow down more than they would have prior to the intersection realignment. In certain instances realignment may require the partial closure of certain intersections due to limited right of way. For example, at Daniel Street and Washington Boulevard the angle of the intersection is very acute and correcting that might require taking an excessive amount of property. Thus, partially closing the street to traffic (i.e. forbidding turns onto Daniel Street from Washington Boulevard) could help reduce the right-of-way needed to straighten the intersection.

3. Minimize Crossing Distances for Pedestrians

The longer the crossing distance, the less likely a pedestrian is to cross a street. Further, wide crossing distances, especially without a refuge median, increase the chances for vehicular/pedestrian collisions. Crossing distances can be

minimized by adding curb extensions, narrowing streets and adding pedestrian refuge medians. Curb extensions work best where on-street parking already exists. Street narrowing works best where roads are under capacity or where no curb and gutter already exists. Pedestrian refuge medians work best on wider, higher speed roads, where it is difficult to cross the entire road at once. This is a particular problem for pedestrians trying to cross Washington Boulevard, Arlington Boulevard and, to a lesser extent, 10th Street. Pedestrian refuge medians should be considered for these streets, especially at any mid-block crosswalks and particularly if the crossing is not signalized. Potential locations for pedestrian refuge medians include 4th Street across Washington Boulevard (the existing crosswalk remains on the street surface across the entire intersection), 9th and Washington Boulevard, and all intersections with Arlington Boulevard. Some of these may require the widening of medians to accommodate a proper pedestrian refuge median of 4-6 feet in width. Curb extensions can present some problems. Ensuring proper drainage, snow plowing and street cleaning may be more difficult. Furthermore, if installed without a parking lane, curb extensions can make the streets more difficult for bicyclists.

4. Allow and Encourage On-Street Parking

On-street parking works well to calm traffic, visually narrow the road and provides a barrier between moving traffic on the road and pedestrians on the sidewalk. Underused on-street parking makes the road seem much wider than it is and encourages drivers to speed. Use of curb extensions can visually narrow the road where on-street parking is not highly used during certain parts of the day. Where curb extensions are not feasible or too expensive, striping the parking lane can also visually narrow the road and discourage speeding. In general, on-street parking should be allowed and encouraged wherever feasible. To encourage on-street parking, off-street parking should be limited to only what is necessary and curb cuts should be minimized to maximize space available for on-street parking. Where sufficient right of way exists, angled parking can be added to increase available on-street parking and narrow the road.

5. Encourage Slowing, Not Stopping

While they can slow traffic, four way stops do not necessarily improve the neighborhood traffic situation in the long term if used improperly. When four way stops are added to intersections where traffic volumes or accident histories do not warrant them, they train drivers to ignore them. Further, constant stopping and acceleration leads to driver frustration, increase air emissions and can

encourage speeding between intersections. Instead of stopping traffic, calming measures should slow traffic. Instead of four way stops, traffic circles can be used. Where traffic circles cannot be added, slowing and narrowing measures such as chicanes, speed humps, gateways and curb extensions should be used. Chicanes are similar to curb extensions except they are added in mid-block locations and protrude into the roadway in such a way that vehicles must veer around them. Often they are used in pairs and sometimes they are used to create one-lane chokepoints in a roadway, forcing vehicles to yield to opposing traffic on two-way streets. The goals should be to slow drivers to a safe and reasonable speed, not stop them and increase their level of frustration. Four way stops do have a purpose and should be used where warranted by traffic volumes or safety concerns. They are not always good traffic calming measures, however, and should not be a substitute for other measures that could be more effective at managing the underlying problem, which is usually traffic speed.

6. Implement Traffic Calming Systematically

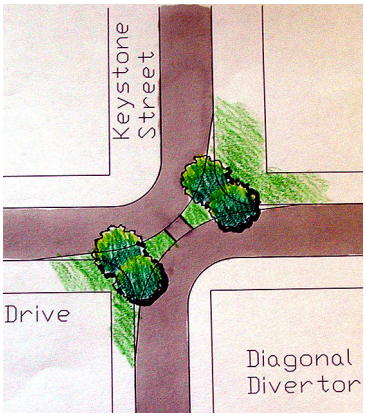
Traffic calming measures work best when implemented systematically rather than individually. One measure in one location will only decrease speeds within 250 to 400 feet of that measure. Using multiple measures in conjunction or repeating a measure over the length of a street is usually the only way to realistically manage the problem of speeding traffic.

7. Straighter Is Not Always Better

While the grid street pattern prevalent across much of Lyon Park provides excellent access to all parts of the neighborhood and beyond, it does not necessary make for the best traffic calming system. Perfectly straight roads make it is easy for drivers to see well ahead and therefore encourages faster driving. One benefit of more curvilinear streets, such as those in more suburban developments, is that they limit sight distance. To create a similar effect in Lyon Park, chicanes could be added where long straight streets encourage speeding. On narrower streets, on-street parking can be alternated, thereby requiring drivers to slow. Similar treatments have already been done on Highland and Irving Streets, creating situations where

driver's sight distances are reduced. As seen in the picture above, alternating parking can significantly reduce sight distance and thereby encourage drivers to slow downs.

8. Diverters



Another major problem for residential grid streets is "cut through" traffic. Grid patterns provide excellent connectivity, but that same connectivity allows traffic to use almost any road to get from Point A to B. Thus, when traffic overwhelms major roads, side streets, like those in Lyon Park, can become pressure valves for the major street system. One method to deal with this problem is to divert traffic with full or partial diverters. Partial diverters, or diagonal road closures, can be particularly useful by creating a maze like affect through a neighborhood. When properly designed, they can allow pedestrian, bicycle and emergency access through them while ensuring normal traffic cannot pass. One situation where partial diverters could help would be to discourage truck traffic from using 4th Street and Edgewood to cut through the neighborhood. Using partial diverters at 4th and Edgewood and 3rd and Edgewood could limit this problem by forcing traffic to take a more circuitous route to reach Pershing Drive from the convenience store at 4th and Washington Streets thereby discouraging them from driving through the neighborhood. On the other hand, such an arrangement of diverters could simply lead to trucks traveling deeper into the neighborhood before exiting onto Pershing or Washington. Thus, their use must be considered carefully, because they may simply divert traffic onto other neighborhood streets. As such, it is usually best to test traffic diversion scenarios prior to their permanent installation. Portland, Oregon always installs temporary diverters and studies the impact on adjacent streets prior to installing permanent traffic diverters.

9. Gateways

True gateways help orient drivers to changes in surroundings and expectations. A real gateway signals to drivers that they have arrived or are passing through a unique area. Gateways generally include signage, landscaping, road narrowing and other elements that force drivers to notice the change in context. Currently Lyon Park has signage at all four major entrances to the neighborhood, both ends of Washington Boulevard and Pershing Drive. Improved and larger signage, greater landscaping and other elements could help slow drivers as they approach the neighborhood. Furthermore, changes in that signage or landscaping on a regular basis helps to retain the uniqueness of the

gateway. Gateways that remain static become part of the background for drivers who pass them daily. Examples of good gateway treatments can be found in the nearby Lyon Village neighborhood. In particular, the gateway treatment at the intersection of North Highland and Lee Highway would be an appropriate treatment for Pershing Drive at Arlington Boulevard. To ensure drivers on Washington Boulevard know they are enter a residential area, pavement treatments, road narrowing, special signage and landscaping should be used in conjunction at both ends of the neighborhood. At a minimum, major gateway treatments should be added at Washington and 9th, Washington and N. Wayne Street and Pershing and Arlington Boulevard. Simpler gateway treatments should be considered at Barton and 10th, Fillmore and Arlington, Highland and 10th and Pershing and Irving.

10. Consider Woonerf

Woonerf means living street in Dutch. It is a concept where all users, pedestrians, cyclists and motorists, share the same space. Generally it works well where there is very limited right of way, low traffic volumes, but a problem with speeding or cut through traffic. Woonerf streets usually have no curb or gutter, in dense areas the street may come directly to the front of the building. Generally parking and other obstacles are arranged to force vehicles to slow dramatically. Furthermore, woonerf streets are generally paved with stone pavers or other methods to highlight their uniqueness and let drivers know that they must respect other users of the space. While a radical concept, when properly implemented, woonerf can significantly reduce traffic speeds and can create streets that function as an enjoyable public space as much as means for vehicular access. Implementing woonerf in an already developed area can be difficult. Therefore, woonerf may not be the best tool for existing problem but could be an option in cases where major redevelopments occur within the neighborhood. For example, if, in the process of the Garfield Park development, the Civic Association wishes to reopen Fillmore Street, a reengineering of the street between Washington and 9th Street to create a woonerf design could maintain the neighborhood's connectivity while ensuring vehicles do not race through this street unrestricted. Such a radical change in the street design, however, would probably work better if the adjacent, triangular parcel between Washington, Fillmore and 9th Street is redeveloped concurrently.

Recommendations for Immediate Concerns

1. Highland and 9th Intersection

Problem:

Lack of visibility and sidewalks at this intersection makes it difficult to see approaching vehicles and pedestrians.

Recommendations:

- Improve sightlines at intersection by requiring property owners to properly maintain shrubbery.
- Eliminate on street parking within 20 feet of intersection.
- Properly mark crosswalks between all sidewalks at this intersection.

2. Highland and 9th Streets

Problem:

Ninth and Highland Streets are the only two streets in this quadrant of Lyon Park that are continuous through the neighborhood. Thus, traffic tends to follow these two routes and, due to the straight roads, tends to move faster than desirable for residential streets. With the redevelopment of the CVS/Sala Thai site, potential increases in cut through traffic and speeding are possible. The traffic impact study completed for the development indicates that no more than 5% of the site generated traffic would use neighborhood streets, mostly 9th Street from Garfield to Highland Street.

Recommendations:

- Create basket weave pattern of stop signs along Highland Street to ensure traffic must stop between Arlington Boulevard and Pershing Drive.
- Consider chicanes and other slowing methods to decrease traffic speed, especially along 9th Street.
- Add sidewalks along 9th where they are currently absent.
- Consider traffic circles, like those along 7th Street, at 9th and Garfield as a means to reduce traffic speed.
- Request Arlington County study the intersection of 9th and Washington after the redevelopment of the CVS/Sala Thai site to determine whether the intersections warrants a signal and to get accurate counts of pedestrians crossing here.

3. Garfield and 9th Intersection

Problem:

Lack of visibility at this intersection and the inability to see the stop sign while traveling north on Garfield make this intersection somewhat dangerous.

Recommendations:

- Improve sightlines at intersection by requiring property owners to properly maintain shrubbery.
- Eliminate on street parking within 20 feet of intersection.
- Add "Stop Ahead" Signs along Garfield mid-block prior to stop sign at 9th Street.
- Consider converting this intersection to a traffic circle if traffic speed along 9th or Garfield becomes problematic.

4. Washington Boulevard

Problem:

Washington Boulevard bisects the Lyon Park neighborhood and creates a barrier between the east and west sides of the neighborhood. Lack of sufficient safe crossings and the high speed of traffic along Washington Boulevard makes it difficult for pedestrians to cross or even walk along Washington. Currently there are three crossing points within or on the edge of the Lyon Park neighborhood: 10th Street, Pershing Drive and a mid-block signalized crossing near Brookside Drive. There is another marked crossing at 4th Street, however, the lack of signalization and the high level of turning traffic at 4th Street discourages pedestrians from crossing here.

Another major problem noted by residents is the high speed of traffic along Washington, especially south of Pershing Drive. Much of this problem stems from the changing nature of Washington Boulevard as it passes through the Lyon Park neighborhood. North of 10th Street, Washington Boulevard is very much an urban boulevard with generally short setbacks, numerous stoplights and other factors which slow traffic. As traffic moves between 10th Street and Pershing Drive, setbacks increase, stoplights decrease, and traffic can generally drive faster. South of Pershing Drive, there is only the pedestrian crossing signal which can stop traffic prior to reaching fully limited access portions of Washington Boulevard. Combined with the downhill grade for southbound traffic, these

factors encourage traffic to increase speed as it passes through Lyon Park. While Washington Boulevard between Pershing Drive and the Arlington Boulevard interchange is still in a highly residential area, it operates more like a free-flow expressway. Traffic coming from the southeast is coming off a limited access, state highway and transitioning to an urban boulevard. Thus, to encourage drives to respect the nature of the neighborhood, Washington Boulevard should be altered to make drivers aware of the changing context of the Boulevard. The following recommendations will serve to discourage speeding, increase pedestrian safety and help define Washington Boulevard as a gateway to Lyon Park and Clarendon instead of a barrier.

Recommendations:

- Add curb extensions at all intersections, where feasible, to decrease pedestrian crossing distances and narrow the road.
- Stripe all on-street parking to visually narrow the road and discourage speeding.
- Mark all crosswalks at all intersections with either painted bar crosswalks like the one at 4th Street, or with stamped asphalt as at Pershing Drive.
- Where possible, include pedestrian refuge medians at crossings to allow pedestrians to cross only two lanes at a time.
- Encourage VDOT to redesign Arlington Boulevard interchange as recommended in Arlington Boulevard Movements recommendation on page 18.

5. 7-11 Traffic Loitering and Truck Turnaround

Problem:

Trucks and other vehicles use 4th Street and other residential streets around the 7-11 convenience store as parking lots and tend to loiter at lunch time.

Recommendations:

- Work with County and property owners to develop plan for shared parking and site access for strip centers along Washington Boulevard. The County should develop a parking overlay zoning district for this area to allow for shared parking development. Such an overlay district would encourage the development of shared parking areas instead of separate parking lots for each individual parcel.
- Any redevelopment of commercial properties in this area should encourage very narrow setbacks with parking on-street or in nearby shared lots. The removal of unnecessary curb cuts should be strongly encouraged as well. Along the west side of Washington Boulevard between Pershing and 4th Street, there are currently five curb cuts to access three separate parking lots. If all three lots were connected and these five curb cuts were consolidated to

one, plus the access to 4th Street from the 7-11 lot, there would be space for about 6-8 new on-street parking spaces along Washington. This addition of on-street parking would almost certainly make up for any lost parking caused by the connection of these three lots.

- To overcome the problem of commercial vehicles parking on and cutting through the neighborhood on 4th Street to patronize the commercial services along Washington, Baker proposes the following steps that should be implemented incrementally to find a solution with the least cost and impact on traffic and accessibility. Each of the following recommendations should be implemented in order and tested for a period of at least three months to allow for traffic adjustment.
    1. Post additional signage along Washington Street near the intersection with 4th Street that reads "Thru Truck Prohibition on 4th Street". Such signs are commonly used in other Virginia jurisdictions where neighborhoods near commercial properties wish to discourage commercial trucks from using residential streets.
    2. Allow on-street parking along 4th Street and encourage neighborhood residents to park there, thereby discouraging commercial vehicles from using the street for idling and parking.
    3. Partially close 4th Street between Edgewood and Washington at the rear parcel line of the convenience store and only allow traffic heading east on 4th Street (toward Washington) to proceed (similar to the partial closure on Garfield between 9th and 10th). This could be tested on a temporary basis using concrete planters or similar barriers.
    4. Add a partial diverter at the intersection of Edgewood and 4th Street forcing traffic heading west on 4th Street to turn left onto southbound Edgewood. This would also make it impossible for most vehicles to turn around at this intersection. This diverter could cause commercial vehicles to travel further through the neighborhood to get back to Pershing or Washington instead of discouraging them from taking this route altogether. Therefore, this measure should be tested on a temporary basis using concrete barriers or planters.

6. Pershing Drive and Washington Boulevard Intersection

Problem:

The intersection of Pershing Drive and Washington Boulevard sits at the heart of Lyon Park and in many ways defines the neighborhood for those who pass through it. The node of commercial retail at the intersection defines a center for the neighborhood and gives the area the feeling of being a village. The intersection, however, leaves much to be desired for pedestrians. Washington Boulevard is quite wide at this intersection. To cross Washington requires crossing five or six travel lanes and a parking lane. Crossing Pershing is not quite as intimidating. In addition, motorists also have difficulty, especially with right turns where the sight distance around the buildings is relatively short. This is a function of the narrow setbacks and the short turn radii. Requiring larger setbacks, however, would diminish the quality urban feel of these buildings. Therefore, curb extensions and road narrowing are necessary to help improve sightlines for right turns and to help calm traffic. Furthermore, narrowing the road could allow for additional on street parking that would benefit the businesses in

the area. By removing a travel lane, conversion of some parallel parking to angle parking is possible, thereby narrowing the road and increasing available parking.

Conversion to angle parking could increase the number of available spaces, but there are some potential issues involved with angle parking. Many people are not comfortable with front-in angle parking because it is very difficult to see traffic when leaving the parking space. Furthermore, front-in angle parking can endanger bicyclists more than parallel or back-in angle parking, due to the lack of visibility when exiting a parking space. Therefore, Baker is recommending back-in angle parking if the neighborhood decides that conversion of parallel to angle is needed. The maneuver required to enter a back-in angle space is similar to, but simpler than, that required for parallel parking. When exiting a back-in angle space, drivers tend to have better sight lines than when exiting a front-in angle space. For these reasons, back-in angle parking can be better than front-in angle parking, though both are acceptable and either form could be implemented if the neighborhood and County agree to implement these changes.

A concept of the proposed angle parking arrangement is shown in Figure 4. In this example, the parking spaces are at a 30 degree angle and each parking space is 10x20 feet. This requires about 17 feet of right of way. Other jurisdictions implementing back in angle parking have used different space requirements, leading to more spaces per block. For example, in Pottstown, Pennsylvania, the town redesigned High Street from a four lane facility with two parallel parking lanes to a two lane facility with bicycle lanes, angle parking on one side and parallel parking on the other. Their final design included two 11' travel lanes, two 6' bicycle lanes, one 8' parallel parking lane and one 16' angle parking lane (at 45 degrees assuming an 8.5'x16' space). All together, such an arrangement would fit within 58' of right of way, which is similar to the right of way available along Pershing Drive between Washington and Arlington Boulevards.

Recommendations:

- Remove right turn lanes from Washington Boulevard.
- Conduct traffic study to verify the potential to narrow Pershing Drive by
    - narrowing westbound Pershing Drive west of intersection to one lane.
    - narrowing eastbound Pershing Drive east of intersection to one lane.
    - using additional space for curb extensions at each corner and for back-in angled parking as seen in Figure 4.
- If narrowing is implemented, lower Pershing Drive speed limit to 25 mph.
- Add curb extensions for all pedestrian crossings at this intersection.
- Forbid right turns on red.
- Request Arlington County conduct an intersection timing study to ensure there is sufficient time for pedestrian crossing at this intersection. Crossing time should allow a pedestrian to cross the entire intersection at an average rate of 3.5 feet per second. Though the MUTCD cites a 4 feet per second pace as the normal crossing speed, other research indicates that 60% of pedestrians walk slower than 4 feet per second (ITE). Crossing Washington Street at this intersection currently requires crossing almost 90 feet of traffic.

Thus the minimum crossing time necessary is nearly 26 seconds. The removal of right turn lanes from Washington and addition of curb extensions could reduce the crossing distance to less than 75 feet, requiring only about 21 seconds to cross, a reduction of 19%.

- Demand vigorous enforcement of the speed limit on Washington Boulevard in this area, especially for trucks as they tend to make excessive and disruptive noise at high speeds.

LYON PARK NEIGHBORHOOD TRANSPORTATION PLAN
FIGURE 4

Prepared for :
The Lyon Park Citizens Association
Prepared by :
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SCALE
0 50' 100'

7. Tallulah Parking issues and Traffic on Daniel Street

Problem:

Skewed angle intersections, like the one at Daniel Street and Washington Boulevard, make certain turn movements very easy and others very difficult. This particular intersection makes it very easy for fast moving traffic from Washington Boulevard to quickly turn onto Daniel Street without slowing down. Much of this traffic is likely cutting through to 10th Street. Compounding the problem is the driveway access for Tallulah. This driveway fronts directly into the intersection of Daniel and Washington, making the intersection more dangerous. Correcting this problem will require some realignment of Daniel Street and changing the access point for Tallulah parking. A recommended realignment is shown in Figure 4. This is a conceptual level drawing and shows a realigned intersection with one-way access. Closing off access to Daniel Street from Washington Boulevard would increase traffic on 9th Street, as those who live on Daniel and need to access their residence would now need to access them via 9th Street. Secondly, it might slightly increase traffic volumes at 10th and Washington, as traffic that previously cut through on Daniel would instead proceed north on Washington to 10th Street. Additional study of traffic volumes and road geometries would be necessary prior to any final design.

Recommendations:

- Realign Daniel Street and Washington Boulevard intersection as seen in Figure 4.
- Realign parking access to Tallulah to come directly off of Washington Boulevard.

8. Pedestrian Crosswalks across 10th Street

Problem:

10th Street borders Lyon Park to the north and separates Lyon Park from Clarendon. 10th Street serves as a barrier between these two neighborhoods and, much like Washington Boulevard, its design unnecessarily divides these two neighborhoods. There are three signals along 10th Street, at Highland, Washington and Barton. In between

there are few if any safe crossing points. It is a four lane road through the entire area, but between Washington and Belmont, there is no on-street parking and a very narrow median. Thus, it is a very different road from Washington Boulevard. Along Washington, pedestrians can at least stop in the median when crossing. Along 10th Street, with such a narrow median, pedestrians must cross all four lanes at once, a difficult proposition except at signalized intersections.

Recommendations:

- Add curb extensions where possible along 10th Street to reduce crossing distances and narrow the road.
- Mark crosswalks at all intersections with either painted bar crosswalks like the one at 4th Street and Washington, or with stamped asphalt as at Pershing Drive.
- Ensure stamped and painted asphalt crosswalks are maintained so that they continue to stand out from the roadway.
- Encourage Arlington County to study 10th Street traffic volumes to determine whether it could be converted to a two lane street with a continuous left turn lane.
    - Current VDOT estimates put volume of 10th Street between Washington Boulevard and Arlington Boulevard at 13,000 vehicles per day (vpd) on an average weekday. In its current configuration, with four lanes, narrow median, no on-street parking and no turn lanes, the road is potentially unsafe for motorists and pedestrians. If volumes are still around 13,000 vpd and are not expected to increase dramatically, VDOT/Arlington County could convert 10th Street from four lanes to two lanes with a continuous left turn lane without significantly decreasing capacity or increasing congestion. Spare right of way could be used to expand sidewalks, add bike lanes, allow dedicated on-street parking or a combination of these.

9. Pedestrian Crossing at 3rd and Cleveland

Currently the mid-block pedestrian crossing in this vicinity is signalized and has push buttons. Yet, when pedestrians press the button, they generally have to wait a significant amount of time before the signal changes and gives them the right of way to cross. Therefore, many pedestrians refuse to wait for the signal to change and cross the street without the aid of the signal. As noted previously, many other changes to Washington Boulevard are recommended to discourage speeding, improve pedestrian safety and generally improve the Boulevard and make it less of a barrier to pedestrians. Implementation of those changes may make this signal unnecessary or this signal could remain to maintain a protected pedestrian crossing of the southern portion of Washington Boulevard. Furthermore, to help combat the speeding problem

along Washington Boulevard, Arlington County could convert this signal to a speed sensitive signal. Such signals respond to speed detectors (either loop detectors in the asphalt or cameras) that detect when a vehicle or vehicles are speeding. The signal then changes to force speeding drivers to stop. Should VDOT and Arlington County implement changes to the Arlington Boulevard and Washington Boulevard interchange as recommended below, a speed sensitive signal would be unnecessary.

Recommendations

- Request Arlington County retime signal to make pedestrian button more responsive.
- Request Arlington County review the signal for conversion to a speed sensitive signal.

10. Arlington Boulevard Movements

Problem:

Arlington Boulevard borders Lyon Park on the east and south sides of the neighborhood. Arlington Boulevard is a partially limited access highway with high speeds. It is a barrier for pedestrians. Its impact directly on the neighborhood, however, is limited since it skirts the edge of Lyon Park. Nevertheless, traffic exiting Arlington Boulevard does affect Lyon Park, especially at 10th Street, Pershing Drive and Washington Boulevard. Fast moving traffic coming off Arlington Boulevard can continue at high speeds, especially at 10th Street and Pershing Drive. At Pershing Drive, the turn radius of the right turn lane from Arlington Boulevard southbound to Pershing Drive is very large. This means traffic coming off Arlington can move at excessive speed. This is dangerous for traffic and pedestrians on Pershing Drive.

VDOT already has plans for redesigning the interchange of 10th Street and Arlington Boulevard. Current plans call for adding collector-distributor (CD) roads to Arlington Boulevard and putting signals at these CD roads and the 10th Street ramps. This new design will provide full access to all directions of Arlington Boulevard and 10th Street. It will also add stop lights to the interchange for traffic entering or exiting from 10th Street, except for southbound traffic on Arlington exiting onto westbound 10th Street. Therefore, traffic calming measures will still be needed to slow traffic exiting from Arlington Boulevard.

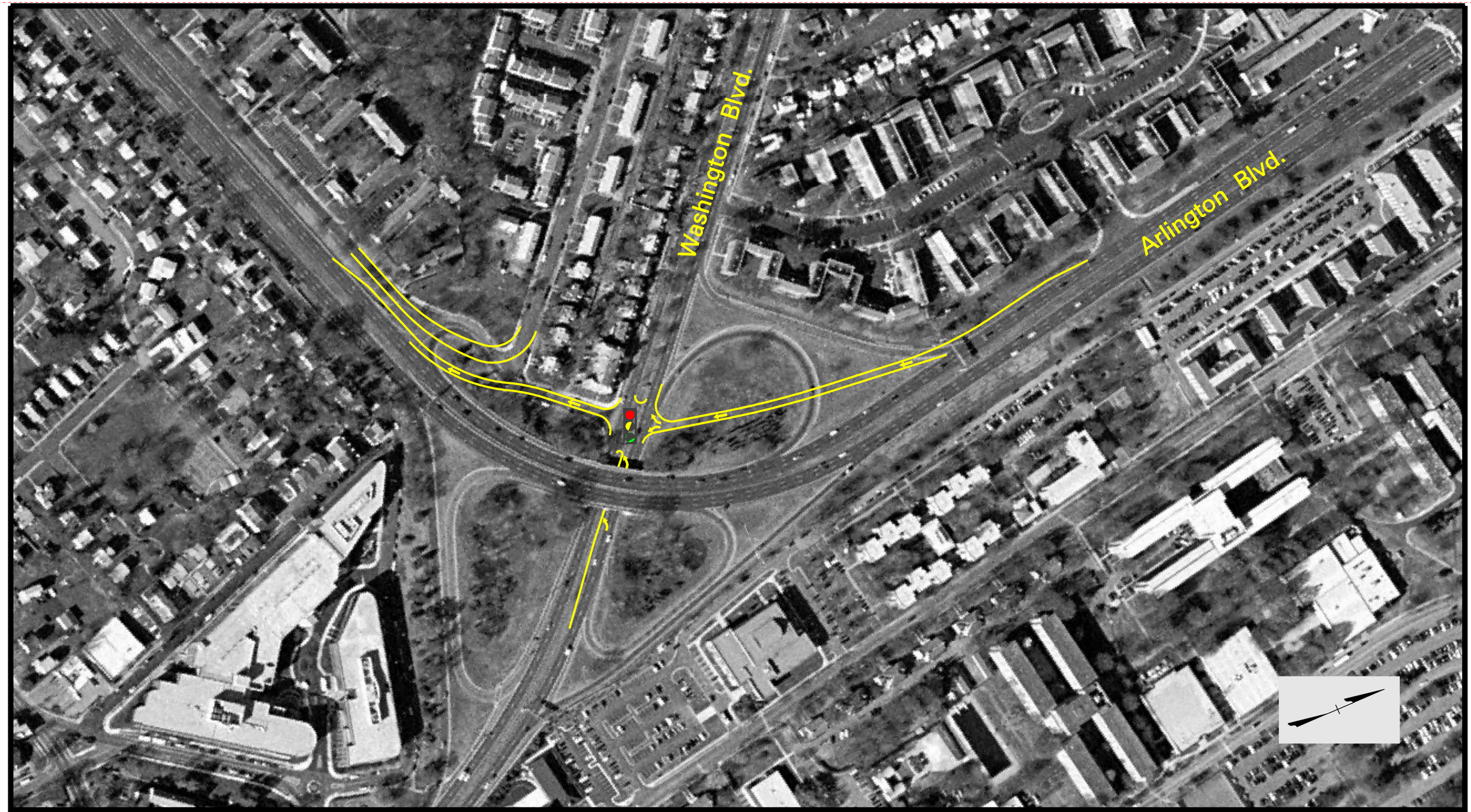
The current configuration of the Arlington and Washington Boulevards interchange does not help the traffic problems for Lyon Park. Traffic can move very quickly through the interchange, but the cloverleaf ramps are tight and potentially unsafe. The design allows traffic to move very quickly into the neighborhood from Arlington Boulevard and allows traffic on Washington Boulevard to pass through unobstructed into Lyon Park.

On the south edge of Lyon Park, Arlington Boulevard intersects with five neighborhood streets (Fillmore, Fenwick, Garfield, Highland and Irving). Signals and crosswalks at Fillmore and Irving provide some opportunity for safely crossing Arlington Boulevard, but they are still inadequate. Since Arlington

Boulevard is so wide (6 lanes), has such high volumes (65,000 vpd) and high average speeds, crossing Arlington Boulevard is extremely difficult under even the best of circumstances and the potential for improving the pedestrian experience is very limited. Two major improvements, however, would be pedestrian refuge medians and improved crosswalks at each signal. With its high volumes and speeds, the County may be reluctant to add crosswalks at unsignalized intersections. Nevertheless, the Federal Highway Administration (FHWA) suggests that pedestrian refuge medians are most helpful at wide, fast moving roadways. While their research indicates that at unsignalized intersections, the benefits of pedestrian refuge medians can be mixed, studies have shows that their use at unsignaized intersections can decrease pedestrian/vehicular accidents (FHWA 15-10). In any case, improved crosswalks and refuge medians at Fillmore and Irving would significantly improve the pedestrian experience along Arlington Boulevard.

Recommendations

- Encourage VDOT and the County to review the designs of exit ramps and turn lanes from Arlington Boulevard to streets entering the neighborhood.
- VDOT and the County should consider realignment of the right turn movement from southbound Arlington to westbound Pershing Drive as part of an overall gateway treatment and to discourage speeding on Pershing Drive.
- Improved and additional landscaping elements and gateway treatments along 10th Street as traffic enters the Lyon Park/Clarendon area.
- Consider and evaluate converting Washington Boulevard interchange to a half-diamond and adding a signal to the north side of the interchange as seen in Figure 5.
- Add gateway treatments including special pavement treatments and improved signage to the minor street entrances to Lyon Park from Arlington Village (i.e. Highland and Garfield).
- Add a landscaped median along the center of Arlington Boulevard from Fillmore to Glebe Rd. Add pedestrian refuge medians to all signalized pedestrian crossings of Arlington Boulevard (Fillmore, Irving and Pershing).



LYON PARK NEIGHBORHOOD TRANSPORTATION PLAN
FIGURE 5

Prepared for :
The Lyon Park Citizens Association

Prepared by :
Michael Baker Jr., Inc.

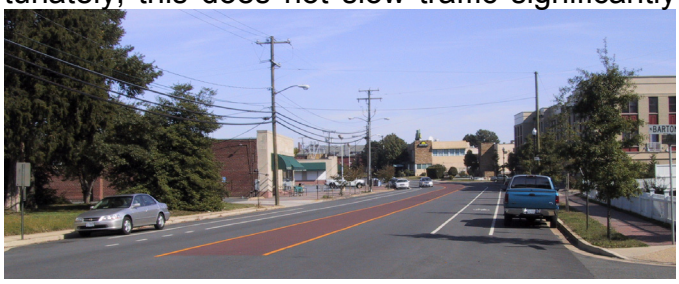
August 2006

SCALE
0 100' 200'

11. Pershing Drive and Barton Street

Problem:

Pershing Drive from Arlington to Washington Boulevards is very wide for a two lane street. There appears to be between 52 and 58 feet of right of way for this road. Even with bike lanes and on-street parking, there is a sizeable median of stamped, painted asphalt. Unfortunately, this does not slow traffic significantly and the lack of curb extensions makes crossing harder than it should be. Furthermore, the relatively wide setbacks combined with the wide right of way and lack of vehicles using the on-street parking makes the road seem very wide and contributes to easy speeding.



Combating this problem requires a narrowing of the roadway. To limit the expense of new curb and gutter along the entire length of the roadway, it is possible to narrow the roadway by creating angled parking on one side. Angled parking at a 45 degree angle requires less than 18 feet of roadway width. Combined with two 12 foot travel lanes, two 5 foot bike lanes and a possible additional 8 foot parallel parking lane, angled parking could help narrow the road and keep within the existing right of way while also increasing the amount of available on-street parking.

Furthermore, use of angled parking could allow for the creation of chicanes in the roadway, which would further help slow traffic. Chicanes are shifts in the direction of the roadway. By alternating the angled parking from one side of Pershing to the other one or two times between Arlington and Washington Boulevards, one or two chicanes could be created. In addition to forcing drivers to slow down in order to shift direction, chicanes can reduce the distance drivers can see, thereby discouraging them from speeding. If a driver can see a very long distance down the road then they are more likely to speed to reach that point in the distance more quickly. In addition to the chicanes, curb extensions should be used at each intersection to protect parked vehicles and limit pedestrian crossing distances. Also, crosswalks should be marked at all intersections. See Figure 4 for a sketch of the proposed design.

These design characteristics could be carried across Washington Boulevard and used along Pershing between Washington and Fillmore Street. Narrower right of way would limit the extent of the redesign, but nevertheless, use of angled parking and reduction of Pershing to two lanes, one each direction, would help slow traffic and improve pedestrian safety. To maintain capacity at the intersection of Pershing and Washington, Pershing could widen to three or four lanes half a block before Washington, allowing room for turn lanes at the expense of parking. Finally, to limit the initial expense of the redesign, many elements of this design, such as the angled parking, could be striped without

reconstructing curb and gutter. If all these recommendations were implemented, Pershing Drive would be much narrower and the angled parking would help reduce the inducement to speed. Furthermore, to ensure safety of motorists and pedestrians, speed limits should be reduced from 30 mph to 25 mph. If none of these recommendations are implemented then the speed limit should remain as is since it fits the size and classification of the existing road.

Recommendations

- Narrow Pershing Drive and lower its speed limit to 25 mph.
- Add angle parking to one side of Pershing Drive.
- Alternate angled parking from one side of the street to the other at one or more locations between Washington and Arlington Boulevards to create chicanes.
- Add curb extensions at intersections.
- Mark crosswalks at all intersections with either painted bars or stamped and painted asphalt, especially at Pershing Drive and Barton Street.

12. Missing Sidewalks in Lyon Park

Problem:

Certain areas of Lyon Park lack sidewalks and that discourages residents from walking to convenient, local destinations. For example, 9th Street from Irving to Garfield lacks sidewalks. Being so close to the Clarendon area, this section of road should have sidewalks on at least one side of the street to ensure residents can safely walk to retail and other destinations in Clarendon and Lyon Park. While this street is narrow, and adding sidewalks within the existing right of way may be difficult, ever effort should be made to add sidewalks to at least one side of the street.

Other streets in Lyon Park lack sidewalks but do not have quite the same limitations as 9th Street. Arlington County has numerous programs through which additional sidewalks could be added in Lyon Park. The Neighborhood Conservation Program allows Lyon Park to develop plans for street improvements and fund them through bond issues. The program is very resident driven and would require much resident involvement, but is the most likely route to get funding for sidewalk projects. Another program is the "Missing Links" program which will fund sidewalk projects that connect existing sidewalks over 3 or fewer properties. While there may not be many locations in Lyon Park that fit the requirements of the program, the quick funding and construction timeline of this program would allow gaps in

the existing sidewalk infrastructure to be filled rather quickly.

Recommendations:

- Add sidewalks to at least one side of the street on all residential streets in Lyon Park.
- Ensure all sidewalks are properly maintained and ensure property owners keep sidewalks clear and passable.

Priorities

Given the significant barrier that Washington Boulevard poses to the Lyon Park neighborhood, remediation of the problems associated with fast moving traffic on Washington should be high on the priority list. Although the volume and speed of traffic is less on Pershing, it also poses some problems to the continuity of Lyon Park and thus should be of moderate to high priority. Additionally, since 10th Street is such a barrier to pedestrian traffic between Lyon Park and Clarendon, it should also be of moderate to high priority. As for other priorities, those areas with the highest speed and highest volume traffic should generally be the problem areas confronted first as they generally pose the highest risk to pedestrians.

To help finalize plans for traffic calming in the neighborhood, the Lyon Park Citizens Association may wish to work with Arlington County to request that VDOT use its Transportation & Mobility Planning Division (TMPD) On-Call Planning services. At the request of the County, VDOT may be able to review specific recommendations of this plan, and complete detailed analysis and design to take these concepts from sketch to reality. For example, the proposed recommendations for the Arlington Boulevard & Washington Boulevard interchange as well as general recommendations for traffic calming along Washington Boulevard could fall under VDOT's TMPD On-Call Planning scope.

Finally, while this plan attempts to prioritize these solutions and problems, in the end, it is the residents and Citizens Association that must come to consensus on the priorities and needs for traffic calming in Lyon Park. Given Arlington County's Neighborhood Conservation Planning system, it is the people of Lyon Park that must make the final decisions regard the most appropriate places for new traffic calming improvements to pursue with the County. Community consensus on the scope and nature of these problems and the need for action is absolutely necessary if Lyon Park wishes to see these issues resolved.

Sources:

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