Pedestrian Access to Commercial Centers

Connecting Residential and Commercial Land Uses

Roanoke Valley Area MPO

July 2006

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Purpose of the Study

The purpose of this study is to make recommendations for improving the pedestrian connections between residential and commercial land uses. The study focuses on the evaluation of existing connections and proposed improvements that would enhance the safety and efficiency of the pedestrian network with the goal of creating a network of safe and convenient routes for use in traveling to and from work, accessing transit stops, and traveling to other popular destinations.

Walking as a Mode of Travel

The goal of a transportation system is to provide safe and efficient mobility and access to different modes of travel to a wide variety of travelers with diverse needs. Walking is the most basic form of transportation, and it is important to provide facilities that enhance safe movement for pedestrians along roads and streets. An individual's transportation needs vary not only according to the physical environment, but also according to their socioeconomic situations and the proximity of destinations. Neighborhoods have their own specific patterns of transportation and travelers within those neighborhoods may be subject to different risks than encountered in other areas. [1]

Streets designed to facilitate high-speed trips by car can be obstacles to pedestrians. However, people are comfortable walking along a roadway if well-designed pedestrian facilities are provided. Walking or bicycling is the only transportation choice for people who do not have access to an automobile. These users will walk on busy urban thoroughfares with no sidewalks or crosswalks when necessary, sometimes creating their own paths across properties and busy streets. Transit users are another user group that require safe connections to walk to and from their transit stops.[2]

Everyone is a pedestrian, including persons using wheelchairs and other forms of mobility assistance. People who walk or ride bicycles are the most vulnerable road users, being less protected from the weather and more likely to be injured in a collision with a motor vehicle; they must often use facilities that were designed primarily for automobiles.

Walking is a fundamental travel mode and an integral component of an efficient transportation network. Appropriate pedestrian accommodations provide the public, including the disabled community, with access to the transportation network; connectivity with other modes of transportation; and independent mobility regardless of age, physical constraints, or income. Effective pedestrian accommodations enhance the quality of life and health, strengthen communities, increase safety for all highway users, reduce congestion, and can benefit the environment. Walking is successfully accommodated when travel by these modes is efficient, safe, and comfortable for the public.[3]

The Influence of Land Use

The pedestrian network is often determined by land use patterns. Placement of commercial facilities is guided by existing land use. For example, grocery stores will locate where there is residential development, gas stations along busy highways, and shopping centers in densely developed areas. Much recently built development has created a situation where an automobile is required for most trips:

- Segregated land use increases the distance between origin and destination points;
- Businesses are designed to be readily accessible by automobile: buildings are set back and separated from the roadway with parking; and
- The transportation system discourages bicycling and walking, due to high traffic volumes and speeds.

Integrating land-use and transportation planning allows new developments to implement these strategies from the onset. Communities that are planned to support a balanced transportation network make walking, bicycling and public transit attractive options. In established communities, many of these goals can be met with "in-fill development" to increase density, changes in zoning laws to allow mixed-use development, and building bicycle and pedestrian connections.

Land use patterns conducive to bicycling and walking include:

- Greater housing densities allow more residents to live closer to neighborhood destinations such as stores and schools;
- Mixed-use zoning allows services such as stores and professional buildings to be closer to residential areas, making it easier to access these facilities on foot or by bicycle;
- Multiple-use zoning allows residences and businesses to share the same structure, reducing travel demands;
- Locating buildings close to the street allows easy access by pedestrians;
- The preservation of open spaces between communities creates a greenbelt, a natural buffer that helps prevent urban sprawl; and
- Resolving conflicts with neighborhood traffic management (traffic calming) makes streets more inviting to walkers and cyclists.

Key Elements of the Pedestrian Network

Sidewalks

Sidewalks provide the actual space that pedestrians use to move form one location to another. Sidewalks should be constructed using standard width found in AASHTO or local guidelines. ADA guidelines should be followed when constructing curb ramps and street crossings.

Pedestrian Crossings

As the number and density of pedestrian-accessible origin and destination points increase, so does the demand for pedestrian crossings. On corridors with scattered development and residences, it is difficult to predict where crossings may occur. On corridors with concentrated nodes of activity, special crossing treatments are easier to justify at locations where crossings will likely occur (apartment complexes, senior citizen centers, schools, parks, shopping areas, libraries, hospitals and other public or institutional uses).

Transit Stops

Most transit users will have to cross the road to access a transit stop on one leg of their trip. Cooperation between public transit agencies and transportation designers is essential to ensure safe pedestrian crossings. By coordinating land use, roadway design and transit stops, passengers will be more secure when boarding or leaving a bus, and walking to or from their destination at either end of the transit trip.

Pedestrian Signals

A pedestrian activated signal may be warranted where the expected number of people needing to cross a roadway at a particular location is significant. Anticipated use must be high enough for motorists to get used to stopping frequently for a red light (a light that is rarely activated may be ignored when in use). Sight-distance must be adequate to ensure that motorists will see the light in time to stop. Warning signs should be installed on the approaching roadway. Pedestrian signals may be combined with curb extensions, raised medians and refuges.

Signage

Signs recommended as part of the pedestrian network include both advance warning signs and pedestrian crossing signs at the crossing itself, and regulatory signs at intersections to reinforce the message that motorists must yield to pedestrians. These signs should only be placed at warranted locations, because excessive signage leads to signs being missed or ignored.

Selection of Study Areas

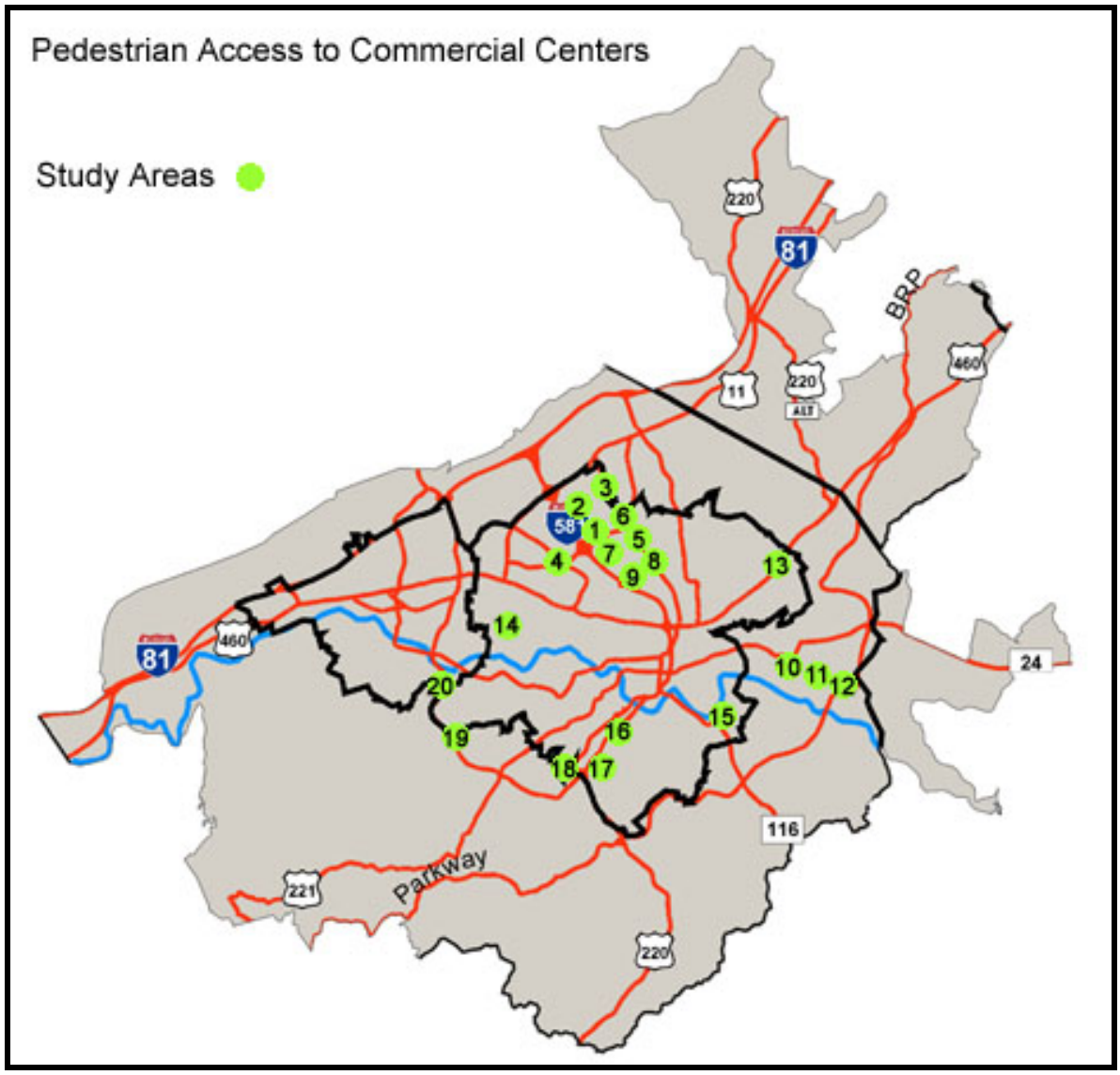
Study areas were limited to locations within the Roanoke Valley MPO boundary. Areas selected for study are major shopping destinations, both local and regional, adjacent to residential areas. The study areas were selected were based on:

- Likelihood of pedestrian use is high – commercial center adjacent to residential area, within a short walking distance (1/4 mile), the commercial center can provide for basic needs such as grocery, pharmacy or eating establishment.
- Evidence of pedestrian use currently exist – actual field checked evidence of pedestrians creating an informal connection between a residential and commercial area, such as paths worn in vegetation along the shoulder of a street.
- Location – close proximity of a commercial center to high-density residential area or neighborhood, apartment complexes, neighborhood adjacent to a shopping center.
- Area lacking adequate pedestrian facilities – many areas have partially addressed pedestrian needs but have not provided complete facilities, crosswalks without a sidewalk, incomplete sidewalk connections, or confusing pedestrian network.

The list of study areas is not exhaustive. There could be additional areas not identified in this study that should be reviewed. Study area locations are shown on the map on the following page.

Study Areas

1. Crossroads Mall - Rutgers Avenue and Hershberger Road Intersection
2. Crossroads Mall - Rutgers Avenue to Towne Square Boulevard
3. Town Square Shopping Center - Towne Square Boulevard and Airport Road
4. Hershberger Road Corridor - Rutgers Avenue to Ferncliff Avenue
5. Huff Lane - Durham Street to Broad Street
6. Huff Lane - Connection to Valley View Boulevard
7. Valley View Boulevard - Valley View Boulevard to the Ring Road
8. Valley View - Valley View Boulevard to Oakland Avenue
9. Valley View Mall - Internal Improvements, Bust Stop, Valley View North
10. Virginia Avenue - Vinyard Road Intersection
11. Virginia Avenue - Intersections of Niagara Road, Bedford Road, Lake Drive Plaza
12. Virginia Avenue - Clearview Drive Intersection, Route 24 Bypass Intersection
13. King Street - Glade Creek Boulevard to Route 460
14. Creekside Shopping Center - Peters Creek Road and Shenandoah Avenue Intersection
15. Bennington Place Shopping Center
16. Franklin Road - Beechwood Drive to Route 220
17. Electric Road - Route 220 to Ogden Road
18. Ogden Road - Electric Road to Colonial Avenue
19. Oak Grove Plaza and Southwest Plaza - Grandin Road / Electric Road
20. Ridgewood Farms Shopping Center - Keagy road / Braeburn Drive/ Electric Road


Pedestrian Access to Commercial Centers
Study Areas
220
81
BRP
460
11
220
ALT
58
3
2
1
6
5
4
7
8
9
13
14
81
460
24
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18
17
116
221
Parkway
220

Crossroads Mall

Rutgers Avenue and Hershberger Road Intersection

The intersection at Hershberger Road at Rutgers Avenue has existing crosswalks that are in poor condition. The intersection does not have complete a sidewalk system for pedestrians along Rutgers Avenue (access to Appalachian Power Company, Wendy's and Dorchester Court residential area) south of Hershberger. The sidewalk resumes at Marr Street NW one block from the intersection. Bean Street (Taco Bell, Wachovia Bank and Roanoke Self Storage) has a traffic signal and crosswalks in place. Pedestrians have to cross seven lanes of traffic at each of these intersections.

It is recommended that existing crosswalks be repainted at each of the intersections. Installation of sidewalks and crosswalks from Hershberger to the end of the existing sidewalks on Rutgers Avenue would create a complete the pedestrian network to the residential area and into Crossroads Mall and Towne Square Shopping Center complex.

Installation of sidewalks along Rutgers Avenue to Marrs Street would complete the pedestrian connection from the residential neighborhood to the commercial area.

Crosswalk at the intersection of Rutgers Street and Hershberger Road, lacking sidewalk.

Path at the intersection of east side of Rutgers Street and Hershberger Road, lacking sidewalk.

Residential area on Rutgers Street, south of Hershberger Road, lacking sidewalk.

Sidewalk along Hershberger Road near Rutgers Street.

Crossroads Mall

Delray Street and Eden Drive Intersections

Delray Street (Airlee Court Baptist Church, and residential area) does not have a crosswalk either parallel or crossing Hershberger. Eden Drive (Valley Bank, Southwestern Telco Federal Credit Union and residential area) does not have a crosswalk either parallel or crossing Hershberger. Crossing Hershberger Road at these two sites would require crossing a concrete median. Neither intersection has a traffic signal. It is recommended that crosswalks paralleling Hershberger be installed, but no crossing of Hershberger due to lack of a traffic signal and the existing concrete medians.

Path from Hershberger Road along east side of Rutgers Street.

Rutgers Avenue leading into Towne Square

It is also recommended that improvements be made to the bus stop on Rutgers Avenue near Lowe's and Kroger. The existing facility consist of a sign and a worn spot in the grass. The bus stop should be concrete pad at a minimum. It would be preferable to have a full fledged bus stop - pad, bench, shelter, and map board - at the site. The bus shelter at Carilion Roanoke Memorial Hospital on Bellview Avenue, is an example of an appropriate bus shelter.

Sidewalk on opposite of street from the bus stop.

Existing sidewalk at Marrs Street and Rutgers Avenue..

Bus stop on Rutgers Street.

Towne Square Shopping Center

Intersection of Airport Road, Town Square Boulevard, and Nelms Avenue.

The intersection was recently redesigned and reconstructed to provide safer entrance onto Airport Road. The intersection is signalized. Airport Road is 3 lanes wide at this point to allow for 2 travel lanes and a left turn lane.

The intersection has a right turn lane on Towne Square Boulevard separated by a triangular concrete median. The intersection does not have crosswalks. This prevents residents that live on the east side of Airport Road (Nelms Avenue) from safely crossing into the Towne Square area.

It is recommended that crosswalks be constructed across Airport Road, Town Square Boulevard and Nelms Avenue. A section of sidewalk from the intersection to the existing sidewalk along Towne Square Boulevard should be installed to complete the pedestrian connection.

Intersection of Airport Road, Nelms Lane and Towne Square Boulevard.

Intersection of Airport Road and Towne Square Boulevard.

Hershberger from Rutgers Avenue to Ferncliff Avenue

This section of Hershberger Road serves as a travelway for pedestrians accessing the Crossroads Mall and Valley View areas from the west side of Interstate 581.

Sidewalks are in place from Williamson Road to Grandview Avenue on the south side of Hershberger Road and extend to the west property line of the Appliance Outlet store, west of the Rutgers Avenue intersection on the north side. From this point, pedestrians follow a path worn into the grass shoulder along the north side of Hershberger Road. A parallel path exists along the south side of Hershberger Road. The paths make several dangerous traffic crossings including the exit and entrance roads connecting Hershberger to Aviation Road, Valley View North, the Thirlane Road intersection, entrance and exit ramps to Interstate 581 and the intersection at Ordway Drive.

Two options should be explored in more detail to facilitate pedestrian traffic along the Hershberger Road corridor: sidewalks and a shared use path. Conventional sidewalks could be constructed from Rutgers Avenue to Ordway Drive. A shared use path (see Appendix A) along the south side of Hershberger Road that could be used by pedestrians and bicyclists could also provide safe access along the corridor.

Sidewalk along north side of Hershberger Road near Rutgers Street.

Path along north side of Hershberger Road near Rutgers Street.

Path along north side of Hershberger Road passing under Aviation Road access ramp.

Path along south side of Hershberger Road near Interstate 581 ramp.

Hershberger from Rutgers Avenue to Ferncliff Avenue - Exit Ramps

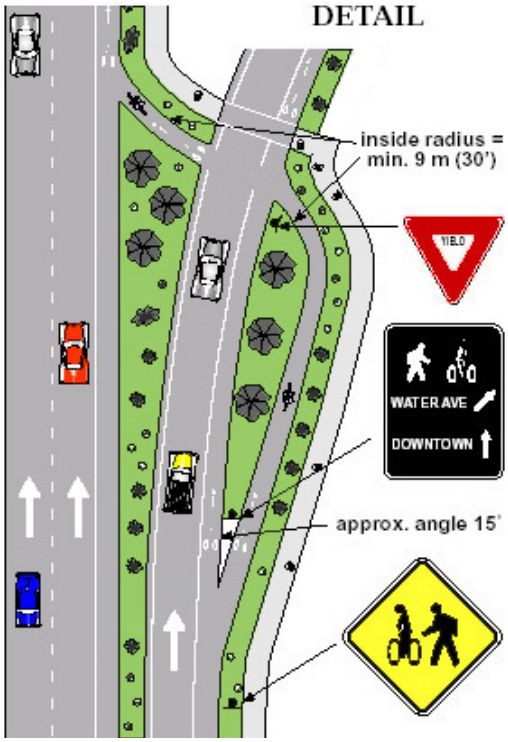
Exit ramps present difficulties for bicyclists and pedestrians because:

1. Motor vehicles exit at fairly high speeds;
2. The acute angle creates visibility problems;
3. Exiting drivers often do not use their right turn signal, confusing pedestrians and bicyclists seeking a gap in traffic.

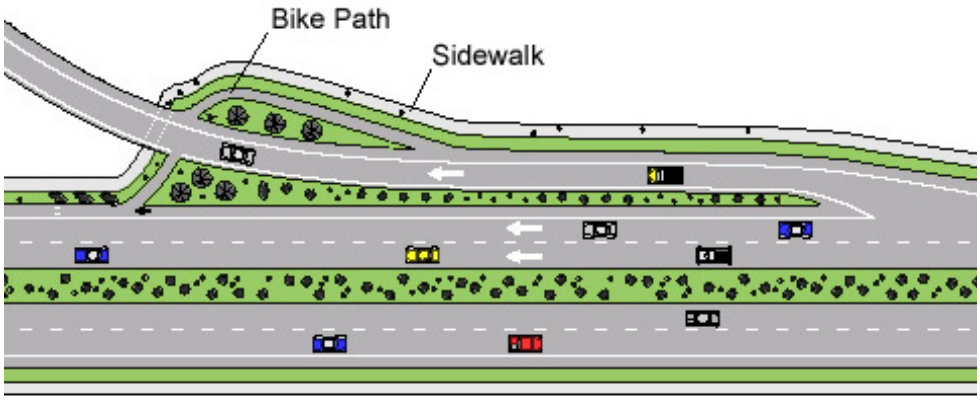
The design illustrated here guides cyclists and pedestrians in a manner that provides:

1. A short distance across the ramp, at close to a right angle;
2. Improved sight distance in an area where traffic speeds are slower than further upstream; and
3. A crossing in an area where the driver's attention is not distracted by other motor vehicles.

The design shown to the right and below is taken from the Oregon Bicycle and Pedestrian Plan. The design provides for pedestrian and bicycle crossings at an urban on/off ramp location and is not recommended for use on limited access freeways. Modified versions of this design could be used at the Hershberger Road interchanges at Interstate 581 and Aviation Drive and Valley View North. Limiting factors for this design would be sight distance from the ramps, right of way availability, and cut/fill necessary to construct the facility.



Through the use of a bike path, sidewalk, crosswalk, landscaping and appropriate signage, pedestrian and bicycle crossings can be accommodated at on/off ramp locations. Source: Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation 1995.



Exit ramp configuration for bike lanes and sidewalks (Urban design, not for use on limited access freeways). See Appendix B for more information about interchanges. Source: Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation 1995.

Huff Lane from Durham Street to Broad Street

The section of Huff Lane in front of Huff Lane School was originally identified in this study as an area that was in need of minor improvements to accommodate pedestrians.

Huff Lane was recently improved by the City of Roanoke by constructing landscaped medians and parking adjacent to Huff Lane School and Huff Lane Park.

The improvements serve as a good example of what can be done to improve the pedestrian environment by changing the streetscape. The changes serve to slow automotive traffic and clarify where pedestrians should cross the street.

The only improvement recommended at this site is installation of directional signage at the point where the sidewalk enters the park area. During field work for the study, it was noted that while a pedestrian connection exists between the residential and commercial areas, it is not always clear where the connections lead. Many pedestrians seem to follow what they believe to be the shortest path instead of utilizing the existing facilities. A sign indicating "To Valley View Mall" or "To Valley View Boulevard" would help to create a safer pedestrian network at this location.

Former sidewalk at Huff Lane School.

New design with landscaped median for traffic calming.

Former design of sidewalk entrance to Huff Lane Park.

New design with angled parking and landscaping.

Huff Lane Connection to Valley View Boulevard

Huff Lane is currently connected to Valley View Boulevard by a sidewalk cutting through a small berm at the intersection of Valley View Boulevard and Valley View West. While the berm serves to protect the neighboring residential area from light pollution, it also limits the ability of pedestrians and motorists to see one another approaching the intersection. It is recommended that the berm be modified on the Valley View side to allow for better sight distance along Valley View Boulevard.

Sidewalks exists on both sides of Valley View West, however there is not a crosswalk connecting the two at the intersection. A crosswalk should be installed.

It is recommended that directional signage be installed at the point where the sidewalk crosses from Huff Lane to Valley View Boulevard. A sign on the southwest side of the intersection indicating where the sidewalk leads would also be helpful in encouraging pedestrians to use the existing sidewalks instead of trying to walk along Valley View Boulevard where there are no sidewalks.

Sidewalk from Huff Lane to Valley View Boulevard NW.

Crosswalk leading across Valley View to Huff Lane.

Sidewalk terminus on Valley View.

Lack of crosswalk at Valley View Boulevard.

Valley View Boulevard to the Ring Road

There is an existing crosswalk at Valley View Boulevard and Ring road connector. The crosswalk leads to the Huff Lane Park. The intersection is signalized and has a crosswalk and pedestrian crossing signal control button. Pedestrians are crossing seven lanes of traffic at the intersection. Based on field work, the signal time is short and makes crossing difficult in a single cycle. Another problem noted was that drivers making a right turn from the Ring Road do not always yield for pedestrians.

Crosswalk at Valley View Boulevard and Huff Lane Park entrance. Pedestrian signal button and crosswalk in place.

Consideration should be given to either increasing the stop time for the signal or providing a pedestrian island in the median. The island would provide pedestrians a safe place to wait between signal cycles. Additional signage reminding drivers to yield for pedestrians when making turns would also make the intersection safer.

A crosswalk should be installed on the south side of the intersection to create a connection from Chic-fil-a to the sidewalk adjacent to Smokey Bones restaurant.

Lack of crosswalk at intersection of the Ring Road and Valley View Boulevard.

A path along the north side of Valley View Boulevard from intersection of Ring Road to IHOP has been worn into the grass by pedestrians. People wanting to access the shops on the north side of Valley View Boulevard are utilizing the grassy strip as a travel way instead of using the existing sidewalk on the south side of the street. Pedestrians also cross at the intersection, follow the path to IHOP and then use a path alongside the park to access Huff Lane at Avalon Avenue. Directional signage indicating the appropriate direction for pedestrians to follow should be installed. The signs could state “To Valley View Mall”, “To Huff Lane”, or “To Lick Run Greenway.”

Path along the north side of Valley View Boulevard.

Two options for dealing with the path are to construct a sidewalk and make it safe and more user friendly or utilize landscaping to make it inaccessible to pedestrians.

Valley View to Oakland Avenue

A pathway leading from the Valley View Grand Theater parking lot to Oakland Avenue has been created by pedestrians. The path cuts through existing landscaping, goes past a stormwater retention facility, and crosses a fence to connect with Oakland Avenue near Round Hill School. The path indicates a demand for such a connection between the commercial and residential areas. As it exists, the path is not safe, is on private property and is not maintained. Two options for consideration are closing the path, using a fence, which still would not necessarily prevent its use, or constructing an official pedestrian trail along the current route. Construction of the trail would require an easement.

Pathway worn into the grass leading from Valley View Grand parking lot to Oakland Avenue.

Potential for another pedestrian trail exists along a parcel behind Valley View Grand Theater and the adjacent shops. This corridor would connect the Round Hill School property to the Valley View area. The corridor terminates at Avalon Avenue, next to IHOP. This could then be tied to the pedestrian path along the north side of Valley View Boulevard described on the previous page. This would connect Huff Lane Park to Oakland Avenue. The path could also connect to the Lick Run Greenway and Round Hill School.

Path from Oakland Avenue leading to Valley View Grand theater.

Proposed path connecting Round Hill School to Huff Lane Park and Valley View Mall area.

Valley View Mall Internal

Bus Stop on the Ring Road

The existing bus stop on the Ring Road consist of 2 benches, a bus stop sign, and a gravel and dirt pad. A manhole cover and a drain that carries stormwater from the Ring Road is located on the pad site. The bus stop should be concrete pad at a minimum. It would be preferable to have a full fledged bus stop - pad, bench, shelter, and map board - at the site. In addition, following construction of the new phase of Valley View Mall, a crosswalk should be installed to provide bus patrons safe access to the main mall complex.

Bus stop at Valley View with stormwater drain.

Valley View North Sidewalk Improvements

The City of Roanoke completed construction of a sidewalk along the east side of Valley View Road NW in 2005, creating a pedestrian link from the hotels to the mall area. It is recommended that a crosswalk be installed at the north end of this sidewalk to improve safety of pedestrians crossing to the hotels on the west side of the street.

The north end of the sidewalk facility could be connected to the recommended pedestrian path along the south side of Hershberger Road proposed on page 8 via an easement across a hotel property.

Recent construction of sidewalk along the east side of Valley View Road NW by the City of Roanoke.

Possible connection from Hershberger Road to the sidewalk along Valley View Road NW.

Virginia Avenue and Vinyard Road

Vinyard Road connects the Lancerlot Sport Complex and Colonial Downs Off Track Betting to Virginia Avenue (Route 24) in the Town of Vinton.

This section of Vinyard Road does not have sidewalks. It is recommended that sidewalks be installed along this section of Vinyard Road.

The intersection of Vinyard Road and Virginia Avenue does not have crosswalks. The intersection is signalized. Due to the commercial nature of the intersection - McDonalds and Bojangles restaurants - and the apartments on the northwest corner of the intersection, it is recommended that crosswalks be installed.

Lack of crosswalks at intersection of Vinyard Road and Virginia Avenue.

End of sidewalk on Vinyard Road.

Vinyard Road leading to Lancerlot and Colonial Downs.

Vinyard Road from Lancerlot to Virginia Avenue.

Virginia Avenue

Virginia Avenue and Niagara Road Intersection

The intersection of Virginia Avenue and Niagara Road does not have crosswalks. The intersection is signalized. Due to the commercial nature of the intersection, coupled with the traffic volume on Virginia Avenue, it is recommended that crosswalks be installed.

Virginia Avenue and Niagara Road intersection.

Lake Drive Plaza

There is a sidewalk located along the south side of Virginia Avenue in front of Lake Drive Plaza, however, there are no crosswalks to provide a continuous connection along the highway. It is recommended that crosswalks be installed parallel to this section of Virginia Avenue.

Lake Drive Plaza access points do not have crosswalks.

Virginia Avenue and Bedford Road

There is a sidewalk located along the north side of Virginia Avenue at the intersection of Bedford Road, however, there are no crosswalks to provide a continuous connection along the highway. It is recommended that crosswalks be installed along this section of Virginia Avenue. This intersection is not signalized and therefore it is recommended that crosswalks should not be constructed across Virginia Avenue at this point.

Intersection of Virginia Avenue and Bedford Road.

Sidewalks in front of Lake Drive Plaza.

Virginia Avenue

Virginia Avenue and Clearview Drive Intersection

There is a sidewalk located along both sides of Virginia Avenue at the intersection of Clearview Drive, however, there are no crosswalks to provide a continuous connection along the highway. It is recommended that crosswalks be installed along this section of Virginia Avenue. This intersection is signalized and it is recommended that crosswalks should be constructed across Virginia Avenue at this point.

Intersection of Clearview Drive and Virginia Avenue.

Virginia Avenue and Route 24 Bypass Intersection

There are no sidewalks or crosswalks located at this intersection. This intersection is signalized.

It is recommended that sidewalks and crosswalks be installed at the intersection along with pedestrian crossing signage and a pedestrian crossing control button.

Entrance to Clearview Manor.

Route 24 Bypass and Hardy Road. Signalized, sidewalks without crosswalks.

Sidewalk along Virginia Avenue east of Lake Drive Plaza.

King Street

King Street, Springtree Drive and Route 460

King Street provides a highway connection for residents along Springtree Drive and Glade Creek apartments (248 units) to the shopping center at the intersection of King Street and Route 460. The shopping center can be seen from the entrance to Glade Creek, however residents have to drive to the site since there are no sidewalks. The same situation exists for residents along Springtree Drive.

It is recommended that sidewalks, along with appropriate crosswalks at Springtree Street and the entrance to Glade Creek be installed along King Street from Glade Creek Boulevard to Route 460.

Route 460 and King Street intersection.

View of King Street and Route 460 intersection.

Entrance to Glade Creek from King Street.

View from the entrance to Glade Creek Apartments.

Creekside Shopping Center

Creekside Shopping Center is located at the intersection of Peters Creek Road and Shenandoah Avenue. Residents of Laurel Ridge Apartments (198 units) and other nearby neighborhoods use the shopping center.

Pedestrians are not using the existing sidewalks and crosswalks at the intersection of Peters Creek and Shenandoah Avenue. Instead, they are taking the direct route from the apartment complex, down the hill and crossing 4 lanes of Peters Creek Road to access the shopping center. A similar situation exists with pedestrians walking up the hill behind the out parcel stores and walking down the bank on the south side of Food Lion to access Shenandoah Avenue. Signage directing pedestrians to the crosswalks should be installed to improve safety at this location. Additional signs warning motorists of pedestrians crossing should also be installed.

It is recommended that the crosswalks at the intersection of Shenandoah Avenue and Peters Creek be repainted.

An existing sidewalk access to the parking lot from Shenandoah Avenue allows patrons to avoid the steep slopes that hinder access at other points on the property. The existing sidewalk along the north side of Shenandoah Avenue is lacking a crosswalk and traffic control. It is recommended that a crosswalk parallel to Shenandoah Avenue be installed at this location along with a stop sign and stop bar.

The south side of Shenandoah Avenue intersection crosses five lanes of traffic leading to the Cherry Hill Road neighborhood. Cherry Hill Road does not have sidewalks. There could be an issue with sight distance for traffic traveling east on Shenandoah Avenue due to the downhill slope. Since this intersection is not signalized, a crosswalk on Shenandoah at this location is not recommended.

Existing crosswalks at Peters Creek Road and Shenandoah Avenue.

Existing sidewalk along Shenandoah Avenue lacking crosswalks.

Path leading from parking lot to Peters Creek Road mid-block crossing.

Bennington Place Shopping Center

Existing pedestrian access from Jamestown Place Apartment complex (150 units) to Bennington Place shopping center is via two dirt paths located at either end of the shopping center.

Residents access the southeast side of the shopping center through what appears to be a purposely constructed “gate” on the property boundary located at the back of the Food Lion.

Pedestrian access to the shopping center from the north end goes around an existing fence that runs along the property line of Jamestown Place. The dirt path parallels the property line and crosses the creek to access Indian Village near the playground and maintenance office.

Formal access points from the apartment complex to the shopping center would be safer and more attractive. The existing paths, shown below, appear to be in adequate locations. Formalizing these paths through establishment of easements, surfacing the paths, and appropriate ADA facilities is recommended.

Pedestrian access through existing “gate” on the southeast side of the shopping center.

Pedestrian access on the north side of the shopping center.

Proposed pedestrian facilities on location of existing paths.

Franklin Road, Beechwood to Duke of Gloucester Street

The section of Franklin Road west of Beechwood Drive SW is used by pedestrians to access the commercial area along the corridor, including Franklin Square Shopping Center, Townside Festival Shopping Center and Tanglewood Mall.

The sidewalk from Franklin Square Shopping Center on Franklin Road ends at Transmissions America. From there, pedestrian traffic typically follows a path along the north side of Franklin Road, past Avenham Avenue and Duke of Gloucester Street, then west to the commercial sites.

It is recommended that sidewalks or a shared use path be constructed along this section of roadway. Crosswalks and appropriate pedestrian crossing signage should be installed at the following locations: Avenham Avenue, Duke of Gloucester Street, Townside Road, and the entrances to Franklin Square Shopping Center and Townside Festival Shopping Center.

Sidewalk terminates at Transmissions America.

Existing shoulder along Franklin Road.

Proposed pedestrian facilities along Franklin Road creating a connection from Duke of Gloucester Street, Avenham Avenue and Beechwood Drive.

Electric Road, Route 220 to Ogden Road

The section of Franklin Road, beginning on the east side of Route 220, to Ogden Road is utilized by pedestrians to access residential and commercial centers. Residential areas adjacent to this section of Electric Road include Edgehill Estate (100 units) and Copper Croft (120 units).

Pedestrians follow a well worn path along the north side of the road, under the Route 220 bridge, west to Tanglewood Road. The interchange of U.S. Route 220 and Route 419 creates a situation in which pedestrians must cross entrance/exit ramps. While Route 419 is signalized at this point, crosswalks and signage are needed at the ends of the ramps in order to create a safer pedestrian environment.

A path along the north side of Route 419 is often used to connect the area east of Route 220 to the commercial properties near Ogden Road and Starkey Road. At this point pedestrians are walking through some of the busiest intersections in the region. Installation of sidewalks, signage and crosswalks in this commercial corridor would enhance pedestrian safety and access.

Within this section of Rt. 419, the intersection of Route 419 and Elm View Road SW connects Tanglewood Mall to the residential areas of Copper Croft and Edge Hill Estate. Pedestrian traffic at this point is crossing Route 419 instead of paralleling it. While some pedestrians utilize the existing traffic signal locations to cross Route 419, many do not. Signage indicating where pedestrians should cross are needed.

It is recommended that sidewalks or a shared use path be constructed along this section of roadway. Crosswalks and appropriate pedestrian crossing signage should be installed at the following locations: Elm View Road, Ogden Road, and the entrances to Tanglewood Mall.

U.S. Route 220 bridge over of Electric Road is a travelway for pedestrians and bicyclists.


Interchange of U.S. Route 220 and Electric Road adjacent to Tanglewood Mall. Path along north side of Route 419 without crosswalks.


Elm View Road SW connects Tanglewood Mall to the residential areas.

Ogden Road

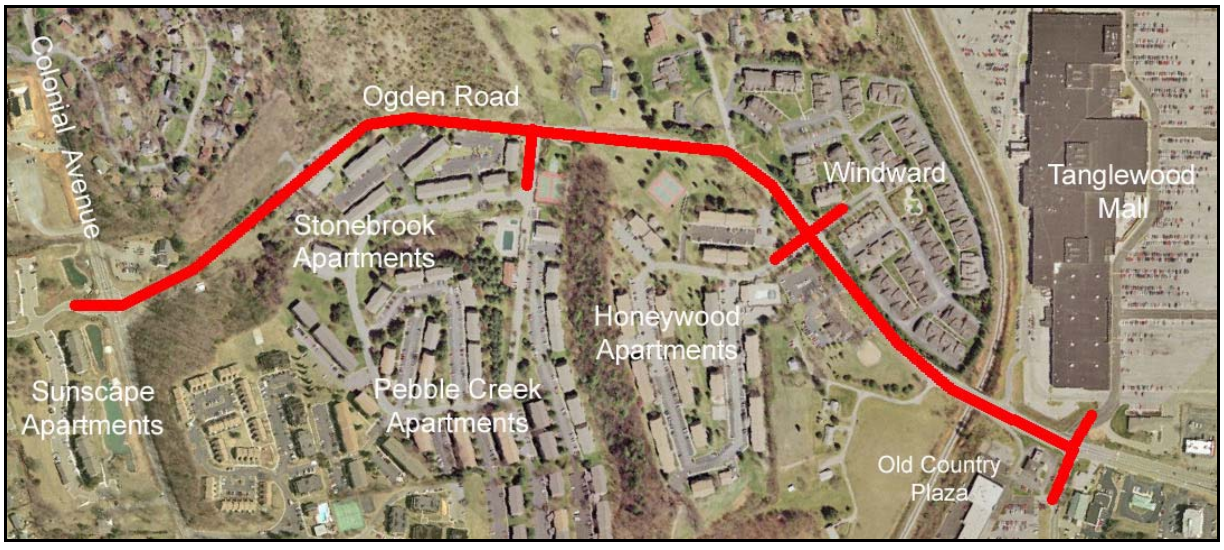
Ogden Road connects Electric Road to Colonial Avenue in southwest Roanoke County. The Ogden Road corridor is populated by several residential complexes: Sunscape (264 units), Stonebrook (168 units), Pebble Creek (468 units), Honey Wood (300 units) and the Westwind community. Major commercial sites include Old Country Plaza, Holiday Inn and Tanglewood Mall.

Ogden Road does not have any pedestrian facilities.

Ogden Road does not have any pedestrian facilities other than the sidewalks on the bridge that crosses the Norfolk Southern railroad. There are three bus stops along Ogden Road that consist of a sign and no other amenities. Pedestrian traffic along Ogden Road follows a path on the west side of the road leading from the Countryside Plaza / Tanglewood area to the residential areas. The lack of sidewalks and minimal shoulder create a dangerous situation for pedestrians.

Existing path along Ogden Road.

It is recommended that two options be considered for Ogden Road. The first is construction of sidewalks along the west side the road. This would place the sidewalk adjacent to the majority of residential development. The second option would be to purchase and easement on the west side of the road and create an off road shared use path.



Major residential and commercial sites along Ogden Road.

Oak Grove Plaza / Southwest Plaza

The intersection of Route 419, Grandin Road and Carriage Lane is located in southwest Roanoke County. This is the location of Southwest Plaza and Oak Grove Plaza. Residential complexes include the Pines (216 units), Windsor Place, Heather Park, Glen Ivy, and Farrington Apartments (100 units).

The intersection is signalized but does not have any other pedestrian facilities. It is recommended that sidewalks and crosswalks be installed at the intersection along with pedestrian crossing signage and a pedestrian crossing control button. Sidewalks should extend the length of the commercial area from Heather Drive to Woodmar Drive.

The intersection of Grandin Road with the entrance to Farrington Apartments does have a pedestrian crossing sign, stop bars and a crosswalk. This is a good example of what can be done to accommodate pedestrians on a side street that is not signalized.

The lack of sidewalks along Grandin Road from Route 419 to Ashley Lane should be addressed. Installation of sidewalks would further enhance pedestrian safety and access to the commercial centers.

Intersection of Route 419 and Grandin Road.

Existing pedestrian facilities along Grandin Road.

Intersection of Carriage Lane, Grandin Road and Route 419.

Grandin Road does not have sidewalks.

Ridgewood Farms Shopping Center

The intersection of Route 419 and Braeburn Drive is adjacent to Lewis-Gale Hospital and Ridgewood Farms Shopping Center. Residential communities in the area include Ridgewood Farms, Chateau Riviera (242 units) and Willow River Apartments (300 units). The intersection of Keagy Road and Route 419, just east of Braeburn intersection, connects the hospital to an office complex, Comfort Suites, and indirectly to the shopping center.

Pedestrians utilize the intersections to access the shopping center, restaurants, Lewis-Gale Hospital, Hampton Inn, Comfort Suites and other commercial sites. Many of the properties, particularly the hospital and hotels, have patrons that that utilize the shopping center on foot, thus creating a demand for improved pedestrian facilities at this location.

The intersections at Keagy Road and Braeburn Drive are signalized and have a pedestrian crossing control buttons. However, there are no sidewalks or crosswalks at the intersections. It is recommended that sidewalks and crosswalks be installed at the intersections along with pedestrian crossing signage. Consideration should be given to constructing sidewalks along this section of Route 419 from Keagy Road west across the bridge over the Roanoke River to Willow River apartments.

Intersection of Braeburn Drive and Route 419.

Keagy Road leading to Route 419 and Lewis-Gale Hospital.

Braeburn Avenue and Route 419 intersection.

Braeburn Avenue leading to Route 419 intersection.

Implementation of Recommendations

This study has made general recommendations for improvements to the pedestrian network related to improving connections between residential area and major commercial centers. Some of the recommendations, such as repainting crosswalks, can be done within the regular maintenance schedule and budget by local governments. Many of the recommendations will be minor construction projects requiring right of way purchase, preliminary engineering and design and adequate local government funds in order to be completed. Some will be major construction projects requiring a great deal of preliminary engineering and design work and a large amount of federal, state or local funding. The recommendations for off road pedestrian paths - Hershberger road from Rutgers Avenue to Ferncliff Avenue, Valley View to Oakland Avenue, and Ogden Road - should be studied in more detail to determine if the projects are feasible.

General Pedestrian Improvement Strategies

1. As part of road construction projects: incorporation of needed pedestrian facilities on construction, reconstruction and relocation projects.
2. As part of preservation projects: These projects will be evaluated for their potential for pedestrian and bicycle improvements. These include bringing sidewalks up to ADA standards, constructing missing segments of sidewalks or widening pavement to provide bike lanes. Costs may be shared with local jurisdictions on a mutually agreed upon ratio.
3. By developers as part of the permit conditions: local governments should encourage developers to provide needed pedestrian facilities when modifications are made to the road.
4. As part of major utility projects: projects such as utility work will also be viewed as opportunities to make improvements. Utility rights of way provide corridors that could be used for pedestrian facilities. Localities and utility companies should also consider the construction of pedestrian facilities as an opportunity to install conduit, fiber optic lines and other types of underground hardware during the construction process.
5. With minor highway improvement projects: improvements such as widening shoulders prior to overlays, constructing short sections of sidewalk and constructing curb cuts and ramps.
6. By restriping roads with bike lanes: VDOT should coordinate with local jurisdictions to restripe urban highways with bike lanes after overlay projects, where feasible, or retrofit bike lanes through stripe removal and repainting. Localities within the Roanoke Valley have annual paving and restriping schedules that should be used to identify appropriate project areas.
7. As stand-alone bikeway and/or walkway projects (within right-of-way): VDOT, in cooperation with local jurisdictions, should develop projects to construct bikeways and walkways where critical sections are missing. Localities should utilize the existing Roanoke Valley Bikeway Plan and the Roanoke Valley Greenway Plan for design standards and priorities. The primary purpose is to provide bicycle and pedestrian facilities. These projects are not generally associated with other highway improvements.

Appendicies

Appendix A
Shared Use Paths

Source: Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation, 1998

Introduction

Though originally conceived to provide a facility for bicyclists separated from motor-vehicle traffic, paths often see greater use by pedestrians, joggers and skaters, sometimes even equestrians. The planning and design of multi-use paths must therefore take into account the various skills, experience and characteristics of these different users.

Where Paths Are Appropriate

Well-planned and designed multi-use paths can provide good pedestrian and bicycle mobility. They can have their own alignment along streams and greenways, or may be components of a community trail system. Paths can serve both commuter and recreational cyclists. Many inexperienced cyclists fear motor vehicle traffic and will not ride on streets until they gain experience and confidence. A separated path provides a learning ground for potential bicycle commuters and can attract experienced cyclists who prefer an aesthetic ride.

The key components to successful paths include:

- Continuous separation from traffic, by locating paths along a river or a greenbelt such as a rail-to-trail conversion, with few street or driveway crossings (paths directly adjacent to roadways are not recommended, as they tend to have many conflict points);
- Scenic qualities, offering an aesthetic experience that attracts cyclists and pedestrians;
- Connection to land-uses, such as shopping malls, downtown, schools and other community destinations;
- Well-designed street crossings, with measures such as bike and pedestrian activated signals, median refuges and warning signs for both motor vehicles and path users;
- Shorter trip lengths than the road network, with connections between dead-end streets or cul-de-sacs, or as short-cuts through open spaces;
- Visibility: proximity to housing and businesses increases safety. Despite fears of some property owners, paths have not attracted crime into adjacent neighborhoods;
- Good design, by providing adequate width and sight distance, and avoiding problems such as poor drainage, blind corners and steep slopes; and
- Proper maintenance, with regular sweeping and repairs. The separation from motor vehicle traffic can reduce some maintenance requirements, such as sweeping the debris that accumulates on roads.

Paths Next to Roadways

Concerns

Multi-use paths should not be placed next to roadways; half of the bicycle traffic will ride against the normal flow of motor vehicle traffic, which is contrary to the rules of the road,

with the following consequences for bicyclists:

- When the path ends, bicyclists riding against traffic tend to continue to travel on the wrong side of the street, as do bicyclists getting to a path. Wrong-way travel by bicyclists is a major cause of bicycle/automobile crashes and should be discouraged.
- At intersections, motorists crossing the path often do not notice bicyclists coming from certain directions, especially where sight distances are poor.
- Bicyclists on the path are required to stop or yield at cross-streets and driveways.
- Stopped motor vehicle traffic on a cross-street or driveway may block the path.
- Because of the closeness of motor vehicle traffic to opposing bicycle traffic, barriers are often necessary to separate motor vehicles and bicyclists. These barriers are obstructions, complicate maintenance of the facility and waste available right-of-way.

Guidelines

Separated paths along roadways should be evaluated using the following guidelines:

- Bicycle and pedestrian use is anticipated to be high;
- The adjacent roadway is a heavily-traveled, high-speed thoroughfare where on-road bikeways and sidewalks may be unsafe;
- The path will generally be separated from motor vehicle traffic, with few roadway or driveway crossings:
- There are no reasonable alternatives for bikeways and sidewalks on nearby parallel streets;
- There is a commitment to provide path continuity throughout the corridor;
- The path can be terminated at each end onto streets with good bicycle and pedestrian facilities, or onto another safe, well-designed path;
- There is adequate access to local cross-streets and other facilities along the route.
- Any needed grade-separation structures do not add substantial out-of-direction travel; and · The total cost of providing the proposed path is proportionate to the need.

Appendix B
Interchanges

Source: Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation, 1998.

Introduction

Freeways in urban areas often present barriers to pedestrian and bicycle circulation. Though interchanges function as freeway crossings, they can be obstacles to walking and bicycling if they are poorly designed. Pedestrians and bicyclists should be accommodated on the intersecting and parallel local roads and streets in urban areas. In rural areas, traffic volumes are usually lower, little pedestrian use is expected, and recreational and touring bicyclists are usually experienced enough to make their way through an interchange. Shoulder widths through interchanges should be wide enough for bicycle use.

However, in urban and suburban areas, pedestrians and bicyclists of all skill levels travel on the intersecting cross-streets. Well-designed interchanges provide safe and convenient passage for non-motorized traffic. To alleviate conflicts, more non-interchange crossings of freeways should be provided, with these advantages for bicyclists and pedestrians:

- Bicyclists and pedestrians can cross the freeway at locations with fewer conflicts with vehicles entering and exiting freeway ramps; and
- The additional crossings will relieve some cross traffic from the interchanges, making it easier for bicyclists and pedestrians who must cross at these locations.

Basic Principles

Designs that encourage free-flowing motor vehicle traffic movements are the most difficult for pedestrians and bicyclists to negotiate safely and comfortably. Conversely, designs that provide safe and convenient pedestrian and bicycle passage may require some slowing or stopping of motor vehicle traffic.

It is important to consider both convenience and safety when providing for pedestrian and bicycle travel near interchanges. If facilities are not used because of perceived inconvenience, the issue of safety becomes moot. The expected path of pedestrians and bicyclists must be obvious and logical, with minimal out-of-direction travel and grade changes. In most urban and suburban settings, the appropriate pedestrian facilities are sidewalks and the appropriate bicycle facilities are bike lanes. Sidewalks should be wide enough to facilitate two-way pedestrian travel; bike lanes must be placed on both sides of the roadway to allow bicyclists to ride with traffic.

Merging and Exit Lanes

While bike lanes and sidewalks are not appropriate on limited access freeways, they are common on urban parkways. These parkways often have freeway-style designs such as merging lanes and exit ramps rather than simple intersections. Traffic entering or exiting a roadway at high speeds creates difficulties for slower-moving bicyclists and pedestrians.

The following designs help alleviate these difficulties:

Right-Lane Merge
It is difficult for cyclists and pedestrians to traverse the undefined area created by right-lane merge movements, because:

- The acute angle of approach creates visibility problems;
- Motor vehicles are often accelerating to merge into traffic; and
- The speed differential between cyclists and motorists is high.

Exit ramps present difficulties for bicyclists and pedestrians because:

- Motor vehicles exit at fairly high speeds;
- The acute angle creates visibility problems; and
- Exiting drivers often do not use their right-turn signal, confusing pedestrians and bicyclists seeking a gap in traffic.

Appendix C
Walkway Signage

Source: Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation, 1998.

Walkways generally require little signing. Most regulatory and warning signs are directed at motor vehicle traffic when they approach a crossing. Very little has been done for directional signs for pedestrians.

Regulatory Signs

The most important signs to increase pedestrians' safety in crosswalks at controlled intersections are STOP and YIELD signs. At signalized intersections with right-turn or left-turn lanes, Yield to Pedestrian signs may be installed where conflicts with crossing pedestrians could occur: R10-2a is used to direct pedestrian traffic at intersections where it would be unsafe for pedestrians to cross at a location other than a marked crosswalk. R9-2a and R9-3 direct pedestrians to cross on green only or to use a push-button.

Warning Signs

Pedestrian Crossing signs should be used at locations where a crossing is not normally encountered. This is usually at mid-block locations, where the adjacent land use is likely to generate a fairly high number of crossings.

Directional Signs

Most directional signs are installed for the benefit of motorists. They are large, mounted fairly high, indicating destinations relatively far away, and may not adequately serve pedestrians. Most walking trips are short, and the pedestrian's line of sight is fairly low. No standards have been developed yet for pedestrian directional signs. Signs should be developed for urban areas to assist pedestrians new to the area, or for residents who may not realize that the best route on foot is shorter than what they are used to driving.

Sign Placement

Signs should be unobtrusive, easy to read and aesthetic. To avoid adding clutter to the existing street signs, it may be preferable to cluster signs together on one post, placed in strategic locations. Distances should be given in blocks, average walking time, or other measurements meaningful to pedestrians. Examples of key destinations to include are: libraries, schools, museums, entertainment centers, shopping districts, etc.

Appendix D
Environmental Justice

The RVMPO Demographic Profile was developed in 2005 to fulfill an important federal requirement and will satisfy Goal 2 of the official Public Involvement Policy. This profile seeks to identify concentrations or otherwise describe certain special populations within the RVAMPO study area. These special populations are identified in and protected by various provisions of federal law from either intentional or unintentional discrimination in any program that receives federal funds. Furthermore, the RVAMPO demographic profile has the additional purposes of informing planning staff, citizen advisory groups, and policymakers about the demographic makeup of their neighborhoods and communities. This information is to be consulted and considered throughout the planning process.

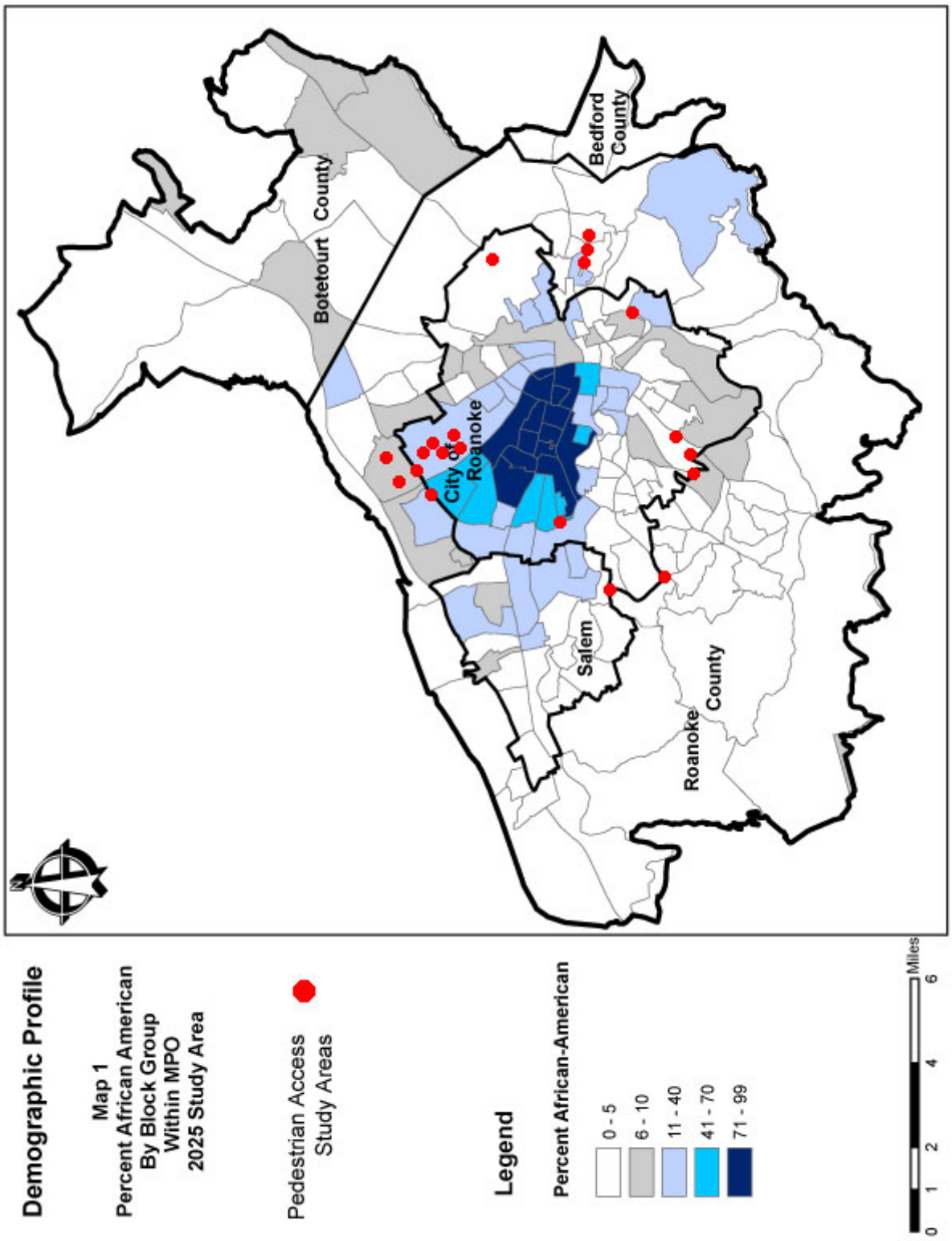
Executive Order 12898, issued by President Clinton in 1994, requires that federal agencies and other entities making use of federal funding avoid "disproportionately high and adverse" effects on minority and low-income populations and to seek involvement of the public toward the ends of ensuring environmental justice in governmental operations. The profile is divided into 6 sections; each section addresses one of the special federal nondiscrimination protections: age and gender, race, limited English proficiency (national origin), Hispanics (national origin), poverty, and disability. The subjects of

Discrimination on the basis of race in federally assisted programs has been prohibited since the passage of the Civil Rights Act of 1964. Title VI of this act prohibited discrimination on the basis of race, color, or national origin in any federally funded program. Data concerning each racial minority has been collected from the 2000 Census and mapped out at the block group level (Maps 1 through 6 in the Demographic Profile). Geographic concentrations of racial minorities can be identified using these maps.

The largest racial minority group within the RVAMPO service area is the 'Black or African American Alone' group at 13.25% of the total RVAMPO population. Map 1 from the Demographic Profile illustrates the location of Black or African American Alone' group in the Roanoke Valley MPO area.

Potential effects upon low-income areas must also be considered throughout the planning process. Map 11, from the Demographic Profile, shows geographic concentrations of individuals who are below the federal poverty level, according to the US Census Bureau.

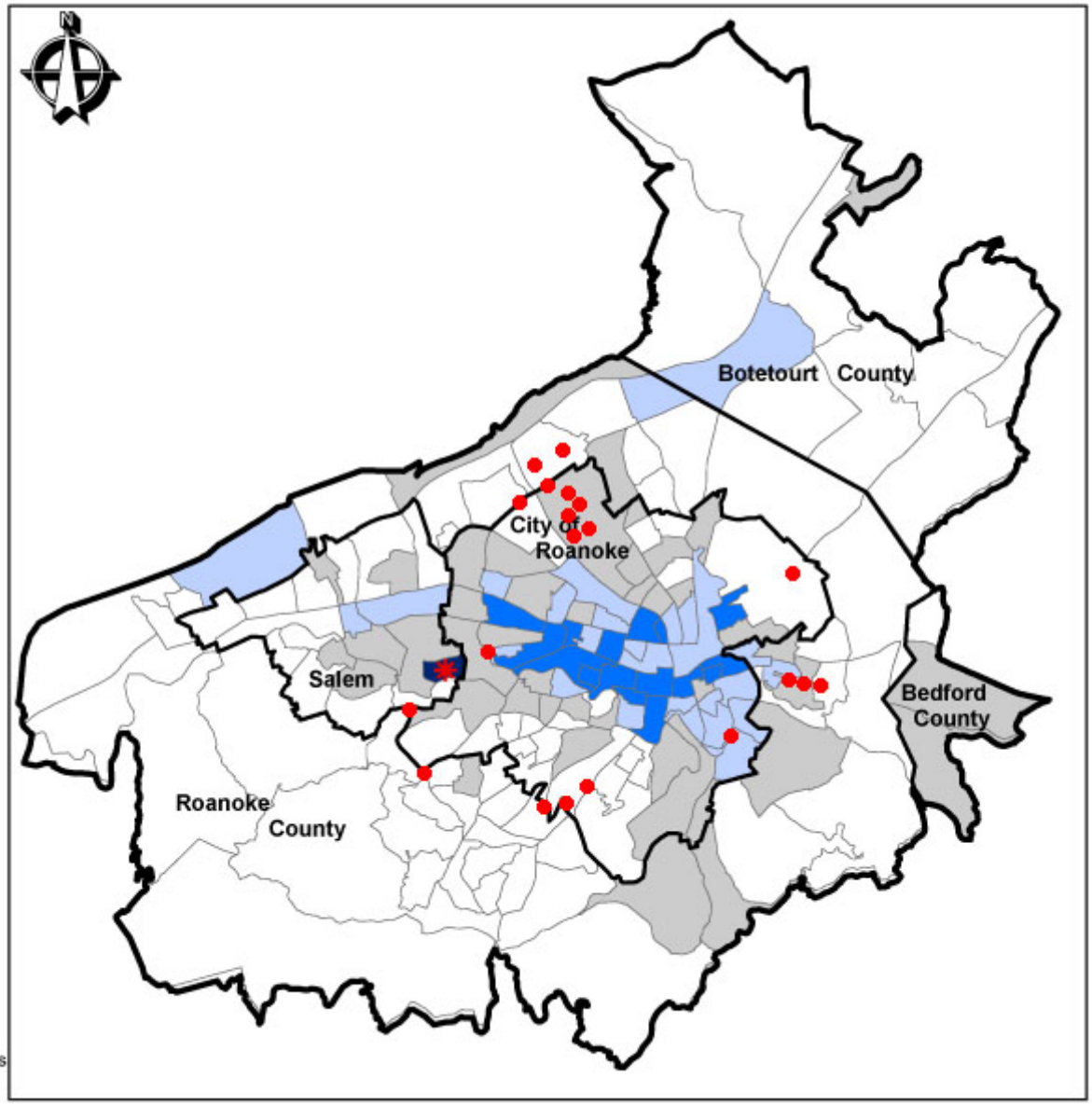
The 20 areas addressed in the Pedestrian Access to Commercial Centers document are shown on the maps from the Demographic Profile on the following pages. One (1) of the areas addressed in the study is located in areas that are more than 40 percent Black or African American Alone. None of the areas addressed in the study are located in areas where more than 30 percent of the residents are below poverty level. Three (3) of the sites are located in areas where between 16 to 30 percent of the residents are below poverty level. These locations are typical of regional commercial centers that typically are developed in high income areas.


Demographic Profile
Map 1
Percent African American
By Block Group
Within MPO
2025 Study Area
Pedestrian Access
Study Areas
Legend
Percent African-American
0 - 5
6 - 10
11 - 40
41 - 70
71 - 99
Botetourt County
Bedford County
City of Roanoke
Salem
Roanoke County
0 1 2 4 6
Miles

Demographic Profile

Map 11
Percent Under
National Povery Line
By Block Group
Within MPO
2025 Study Area

Pedestrian Access Study Areas



Legend

Percent Under Poverty

- 0 - 6
- 7 - 15
- 16 - 30
- 31 - 60
- 61 - 100

Data Error

0 1 2 4 6 Miles

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