



Table of Contents

	_		Design Chal	1011500
	Background 1.1 About ACTA		7.1	The Challenge of Retrofitting Existing
		Why ACTA Undertook This Study	, , ,	Pennsylvania Bus Stops
		Identify the Problem	7.2	The Balance Between a Real Site an
		Funding for the Study	<u>-</u>	Designing to a Prototype
		The Steering Committee	0.5	
	1.6	The Stakeholder Committee		Busy Roadway Bus Stop
		Consultant Selection	8.1	Existing Conditions Along a Busy
	1.8	Project Work Plan	0.2	Roadway
			8.2	The Selected Busy Roadway Site:
2. 1	Examining Existing Conditions		0.2	University Boulevard
	2.1	Bus Stop Inventory	8.3	Busy Roadway Bus Stop
	2.2	Bus Rider Surveys	0.4	Recommendations
	2.3	Walking Tour of the Study Area	8.4	Pedestrian and Cyclist Access to Bu
	2.4	Typical Suburban Bus Stop Conditions	0.5	Stops
3. I	. Researching the Problem		8.5	Bus Shelter Setbacks
	3.1 Searching Existing Literature		9. Prototype 2:	Suburban Retail Bus Stop
	3.2	What was Most Useful and Why	9.1	Existing Conditions at a Suburban
	3.3	Personal and Women's' Safety		Retail Center
	3.4	Methods of Conducting Transit Stop	9.2	The Selected Suburban Retail Cente
		Inventories		Walmart at North Fayette
	3.5	Transit Stop Design Guidelines	9.3	Suburban Retail Bus Stop
	3.6	Pedestrian Roadway Safety		Recommendations
	3.7	Smart Transportation	10. Prototype 3	R. Hub Station
4	Tanning I	ocal Expertise	10. Trototype 3	Existing Conditions at the Hub Stati
т	4.1	Stakeholder Participation	10.1	Hub Station Recommendations
	4.2	Transit and Planning Agencies		
	4.3	Retail Mall Managers		1: Intermodal Transfer Center
	4.4	Pennsylvania Department of	11.1	Existing Conditions at an Intermoda
	7.7	Transportation		Transfer Center
	4.5	Shelters Owner Lamar Advertising	11.2	Intermodal Transfer Center
	4.6	ADA Expert		Recommendations
	4.7	Engineering Consultants	12. Future Chal	llenges and Next Steps
	4.8	Local Townships	12.1	Lack of Foresight and Investment
		•	12.2	Bus Stop Capacity and Location
5. I		ing Ordinance Reviews	12.3	To Whom Does the Travel Path
	5.1	The Purpose of Zoning Ordinances		Belong?
	5.2	Review of Local Zoning Ordinances	12.4	Setbacks and Third Party Agreemen
	5.3	Meetings with Township Managers and	12.5	Emergency Assistance
		Planners	12.6	Cold Weather Bus Stops
	5.4	A Pennsylvania Precedent for Bus Stop	12.7	The Next Steps to Improved Safety
		Zoning Ordinances		and Security at Suburban Bus Stops
	5.5	Recommendations to Amend Local	12.8	Acknowledgements
		Zoning Ordinances	0	<i>6</i>
6. I	Proposed 1	Bus Stop Characteristics and Amenities		
	6.1	A two-Fold Design Focus		
	6.2	Safe Bus Stop Site Characteristics		

7. Design Ch	allenges				
7.1	The Challenge of Retrofitting Existing Pennsylvania Bus Stops				
7.2	The Balance Between a Real Site and Designing to a Prototype				
8. Prototype l	: Busy Roadway Bus Stop				
8.1					
	Roadway				
8.2	The Selected Busy Roadway Site:				
	University Boulevard				
8.3	Busy Roadway Bus Stop				
	Recommendations				
8.4	Pedestrian and Cyclist Access to Bus				
	Stops				
8.5	Bus Shelter Setbacks				
9. Prototype 2: Suburban Retail Bus Stop					
9.1	Existing Conditions at a Suburban				
	Retail Center				
9.2	The Selected Suburban Retail Center:				
	Walmart at North Fayette				
9.3	Suburban Retail Bus Stop				
	Recommendations				
10. Prototype	3: Hub Station				
10.1	Existing Conditions at the Hub Station				
10.2	Hub Station Recommendations				
11. Prototype	4: Intermodal Transfer Center				
11.1	Existing Conditions at an Intermodal				
	Transfer Center				
11.2	Intermodal Transfer Center				
	Recommendations				
12. Future Ch	allenges and Next Steps				
12.1	Lack of Foresight and Investment				
12.2	Bus Stop Capacity and Location				
12.3	To Whom Does the Travel Path				
	Belong?				
12.4	Setbacks and Third Party Agreements				
12.5	Emergency Assistance				

Safe Bus Stop Amenities

Other Considerations

6.3

6.4



Appendices

- A. Steering Committee Members
- B. Steering Committee Meeting Minutes
- C. Stakeholder Committee Members
- D. Stakeholder Committee Meeting Minutes
- E. Request for Proposals
- F. RFP List
- G. Proposal Evaluation Rating Sheet
- H. Estimates of Probable Construction Costs for the Prototypes
- I. Bus Stop Inventory Checklist
- J. Bus Stop Inventories in the Study Area
- K. Bus Stop Survey
- L. Bus Stop Survey Results
- M. PowerPoint Presentation of Bus Stop Survey Results
- N. Summary of Zoning Ordinances
- O. Literature Search Abstracts
- P. Literature Search Bibliography

1. Background

1.1 About ACTA

The Airport Corridor Transportation Association (ACTA), incorporated in 1990, is a nonprofit transportation management association located in Robinson Township, Allegheny County, Pennsylvania. ACTA is a membership-based organization whose members include businesses and public sector entities that collaborate to optimize the use of the transportation system in the Pittsburgh International Airport corridor by supporting and implementing demand management strategies. ACTA seeks to broaden the spectrum of travel options and support responsible economic growth.

1.2 Why ACTA Undertook This Study

Over the past several years, retail, hotel, restaurant, and office development in the Robinson and North Fayette Township areas has been very successful. So successful, in fact, that Robinson Town Centre, The Mall at Robinson, and The Pointe at North Fayette are by far the largest concentration of retail in the western suburbs. With this success has come increased movement of all types: vehicular as well as pedestrian and bicycle. The Montour Trail, a regional bicycle trail, is adjacent to the commercial area. The hub of Port Authority of Allegheny County (PAAC) bus service for the airport corridor is also in this commercial area. Beaver County Transit Authority (BCTA) makes several stops in the commercial area as well. Pedestrian amenities are few. Most areas do not have sidewalks, steps, handicap ramps, etc. A commercial area developed for the automobile now hosts hundreds of pedestrians each day. With the help of "Walkable Communities, Inc." and Southwestern Pennsylvania Commission (SPC), the region's metropolitan planning agency (MPO), ACTA held a community workshop/audit to



Community workshop

discuss mobility issues in the commercial area. As part of the workshop, ACTA documented a significant increase in pedestrian traffic through a series of photographs showing the "desire paths" in the unimproved grassy/earth areas, many on steep earth slopes. ACTA subsequently developed a walking tour of the area for local elected officials to illustrate mobility concerns. The problem was highlighted in a feature article in the June 2004 issue of Pittsburgh Magazine.



Photo of "Desire Trails"

1.3 Identify the Problem

Over the past few years, ACTA conducted two major studies to look at commuting and mobility issues in the airport corridor. Both studies were based on user surveys and focus groups of workers, shoppers, business owners, local residents, bus riders, bicyclists and pedestrians. The first, Study of Improved Shared Ride Transportation Services in the Robinson/North Fayette Employment Center, examined where jobs are located

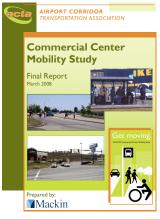


Image Courtesy of Mackin Engineering Company

and the current barriers and future opportunities for commuters getting to work. The second, ACTA's *Commercial Center Mobility Study*, took a much broader look at mobility issues in the same study area in order to develop a community and user-focused plan of action to improve mobility,

enhance intermodal connectivity and create a sense of place in the commercial area which serves as the downtown for the community. In addition to these two technical studies, ACTA published the following reader friendly summaries, which are available in hardcopy upon request or electronically at www.acta-pgh.org:

- *Commuting in the Corridor*
- Moving Around Within a Suburban Commercial Area
- A Planner's Notebook
- Suburban Transportation Solutions

This report summarizes ACTA's Safety and Security at Suburban Bus Stops, an outgrowth of the two previous studies. The purpose of this study is to respond to existing conditions in the study area, an area built for vehicular access, to design a set of "replicable prototype bus stops and bus stop placements that address mobility and accessibility challenges faced by bus riders in an area with limited pedestrian amenities." The initial study parameters required that the Prototypes address typical suburban bus stop placements such as an intermodal hub/transfer stop, a stop along a busy roadway, a stop in an office park, and a stop within a retail mall area. Bus shelter design should incorporate technology related to real-time bus information and pedestrian amenities. The study's recommendations will also address pedestrian access to and around the bus stops so that pedestrian circulation is improved to a level of service more equal to that afforded vehicular travel.

The consultant was asked to address these functional areas:

- Pedestrian Movements
 - Pedestrian circulation in an area that favors motorized vehicles
- Bicycle Issues
- Bus/Bus Rider Issues
 - Retail Area as Hub for PAAC & BCTA
 - Bus Circulation in the Retail Area
 - Private Shuttles Connections
 - Bus Stop Locations
- Bus Shelters (Lighting, Security, Transit & Other Signage, Maintenance)
 - Pedestrian Access
 - Rider Amenities
- Intermodal Issues
 - Better Modal Connectivity at Bus Stops
- Safety Issues
 - Pedestrian & Bicycle Safety
- Accommodations for Persons with Disabilities
- Consideration of Green Design





Lack of accessible amenities typical at suburban bus stops

1.4 Funding for the study

The study was funded by a grant from the Pennsylvania Department of Transportation (PennDOT).

1.5 The Steering Committee

A project Steering Committee was formed by ACTA with input from PennDOT. Steering Committee members included ACTA board and staff, PennDOT staff, and the consultant as identified in Appendix A: Steering Committee. The purpose of the Steering Committee was to oversee the progress of the study, to offer technical guidance, as needed, and to insure project deadlines were met and funding was in place and disbursed as required. The Steering Committee decided to meet monthly by conference call throughout the course of the study although often the meeting was cancelled in lieu of a written report of progress from ACTA to the committee members. (Minutes of the meetings can be found in Appendix B: Steering Committee Meeting Minutes.)



1.6 The Stakeholder Committee

The Stakeholder Committee, selected by ACTA, was formed to provide technical expertise and feedback throughout the study. (See Appendix C: Stakeholder Committee Members.) The following organizations were represented on the Stakeholders Committee:

- City of Pittsburgh, ADA Coordinator
- Representatives from ACTA Board and Staff
- Allegheny County Department of Economic Development
- Beaver County Transit Authority
- Lamar Advertising
- Montour Trail Council
- Moon Township
- North Fayette Township
- PennDOT, District 11-0
- Port Authority of Allegheny County
- Robinson Township
- Southwestern Pennsylvania Commission

The Stakeholder Committee met four times at key points as the study progressed. The first meeting, held on June 10, 2008, introduced the Stakeholders to the study and presented a draft Request for Proposals (RFP). The Committee provided feedback on the RFP. The second Stakeholder Committee meeting, conducted on September 25, 2008, gave Committee members a chance to walk the study area, listen to the consultant's plan of action and to provide feedback. At the December 4, 2008 meeting, ACTA and the consultant presented the results of bus rider surveys, stakeholder interviews, and a literature search. The consultant also identified and proposed the specific project area sites that would be the foundation of Bus Stop Prototypes. At the fourth meeting, held on March 13, 2009, the Stakeholders discussed the four Draft Bus Stop Prototypes and gave feedback to the consultants for finalizing the prototypes and preparing the technical report. (See Appendix D: Stakeholder Committee Meeting Minutes.)



Stakeholder Committee Meeting

1.7 Consultant Selection

With feedback from the Stakeholders, ACTA finalized the RFP (Appendix E: Request for Proposals) and sent it to a list of 14 firms with expertise in architecture, landscape architecture, and/or transportation engineering on June 18, 2008. (See Appendix F: RFP List). Proposals were due to ACTA by July 14, 2008.

A sub-committee of the Stakeholders group agreed to participate in the RFP selection process. On July 15, 2008 the RFP Selection Committee met to review the proposals that were received. (See Appendix G: Proposal Evaluation Rating sheet):

- Bob Dudash, URS and ACTA Vice-President
- Bob Grimm, North Fayette Township
- Lynn Heckman, Allegheny County Department of Economic Development
- Richard Meritzer, City of Pittsburgh ADA Coordinator
- Kristen Sheleheda, Beaver County Transit Authority

Three firms were selected for oral presentations. The firm Maynes Associates • Architects, LLC was selected. Their sub consultant was Mackin Engineering Company. A Notice to Proceed was sent on August 1, 2008. Throughout this report the consultant will be referred to as "the design team."

1.8 Project Work Plan

Maynes Associates • Architects, LLC proposed the following sequence of work task in order to conduct a thoughtful process of data collection and analysis, prototypical design idea generation, and delivery of recommendations in a final report:

- Meet with Steering Committee and/or Stakeholder Committee to review the project goals, existing documentation, and to discuss applicable design standards and performance criteria.
- Conduct a walking tour of project area.
- Document site conditions photographically.
- Conduct a forensic analysis to determine existing condition of bus stops, bus shelters, and pedestrian amenities.
- Provide input for the development of a bus stop user survey.
- Participate in monthly Steering Committee meetings.



- Review information supplied by ACTA:
 - Previous project area studies
 - Literature search of suburban bus stops
 - Bus stop user surveys
 - Inventory of existing bus shelters
- Coordinate base mapping.
- Review existing local zoning ordinances.
- Identify existing conditions that impact site
 planning such as property lines, topography, steep
 slopes, adjacent land uses, significant
 natural features, vegetation, utilities,
 railroad lines, roadway alignments, traffic patterns,
 adjacent occupancies, site access, etc.
- Participate in a Stakeholder Committee meeting to report on existing conditions and obtain input.
- Develop "Prototypical Site Design Concepts" Prepare site plans illustrating pedestrian
 amenities and bus stop placements for four
 typical suburban settings.

 Note: Each site design concept will
 consider access to multiple modes of
 transportation, proximity to major destinations,
 placement of stops/stations relative to traffic and
 pedestrian patterns, site lighting conditions,
 provisions for site furnishings such as
 trash receptacles and bike racks,
 landscaping features, constructability, and
 maintainability.
- Develop "Prototypical Bus Stop Concepts" Prepare and/or identify alternative bus
 stop designs that address performance
 criteria for the various site
 placements such as:
 - Wind, rain, and snow screening
 - Sun shading
 - Visibility into, out of, and around the shelter
 - Pedestrian access including ADA compliance
 - Lighting
 - Seating
 - Signage locations
 - Real time bus information equipment trip planning and – Automatic Vehicle Location (AVL) systems
 - Advertising panel (as revenue generators)
 - Constructability and first costs
 - Maintenance and sustainability
 - Green design opportunities use of local materials/products/plantings, solar powered illumination, stormwater run-off handling.

- Present "Prototypical Site Design and Bus Stop Concepts" to Stakeholder Committee for selection of preferred alternatives.
- Refine the preferred "Prototypical Site Design and Bus Stop Concepts," incorporating feedback.
- Prepare "Preliminary Statement of Probable Construction Cost" for preferred alternatives. For prototypical design work, cost ranges of potential design components will be itemized.
- Summarize critical features, geometries, and performance criteria for each preferred alternative.
- Develop "Suggested Amendments to Local Ordinances."
- Prepare Summary Report.
- Deliver electronic files of deliverables and present them to the Stakeholder Committee, if desired.



2. Examining Existing Conditions

The suburbs have long been recognized as an environment that revolves around automobile travel. Often, the designers of our infrastructure have failed to recognize that other modes of transportation exist even where cars dominate. The safety and security of pedestrians, cyclists, and those with mobility challenges should be incorporated into any initial site development plan. In the case of the project area, the commercial areas of Robinson Township, North Fayette Township, and Moon Township, few pedestrian amenities associated with multimodal transit exist.

This chapter describes the activities undertaken to observe and document the existing conditions within the project area. It also defines the four prototypical conditions that the design team was asked to examine. After articulating the shortcomings of each prototypical condition, strategies for improvements could be developed.

2.1 Bus Stop Inventory

To document existing conditions at bus stops within the study area, ACTA developed a Bus Stop Inventory Checklist. (See Appendix I.) ACTA used the Easter Seals Toolkit for the Assessment of Bus Stop Accessibility and Safety as a model for developing the checklist. In all, 38 bus stops and shelters in the study area were photographed and inventoried. (See Appendix J: Bus Stop Inventories in the Study Area.) The inventory checklist included:

- Identification and location of the stop
- Pedestrian access features
- Connections (trip generators)
- Pedestrian comfort amenities
- Trash assessment
- Safety and security features
- Lighting assessment
- Landscaping assessment
- Information features







Existing Bus Stop Conditions



2.2 Bus Rider Surveys

In the fall of 2008, ACTA staff surveyed bus riders at the IKEA bus stop on Park Manor Boulevard. This stop was chosen because of the high volume of riders that board at this stop. A total of 120 surveys were distributed on three consecutive weekdays, Tuesday through Thursday, between 7:00 a.m. and 5:00 p.m. Participants were asked to complete and return the survey to ACTA in a stamped envelope that was provided. As an alternative, participants were invited to complete the survey on-line. In all, 36 completed surveys were returned to ACTA.

The survey consisted of 14 questions. (See Appendix K: Bus Stop Survey.) The purpose of the survey was to get rider input on issues relating to bus stops conditions and amenities. Other questions focused on safety. Riders were also asked questions about getting to the bus stop, as well as, how frequently they ride the bus. Of the questions, 12 were multiple-choice and two were open-ended. Three of the multiple choice questions provided space for an open-ended response as well. Survey participants received the following instructions:

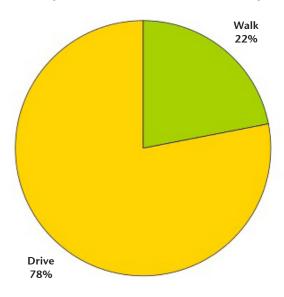
We need your input! The Airport Corridor Transportation Association (ACTA) is conducting a study on Safety and Security at Suburban Bus Stops. The study is looking at several issues at local bus stops including: pedestrian safety and mobility, bus stop placement, accessibility issues, and environmental factors. We are looking for ways to make your experience at the bus stop more comfortable. We are particularly interested in the bus stops in the Robinson-North Fayette retail area. As a transit rider, your experiences and opinions are crucial to the success of the study and its potential solutions. Attached is a fourteen (14) question survey that should take approximately 5-10 minutes to complete. We would appreciate it if you could complete the survey and return it to us in the included postage paid envelope. If you would like to complete the survey online please go

http://www.surveymonkey.com/s.aspx?sm=3kNWQiUy 3oikmQOWDq2MZA_3d_3d

Thank you in advance for your participation!

The results of the survey are itemized in Appendix L: Bus Stop Survey Results and showed that more than three quarters of those surveyed drive to the bus stop.

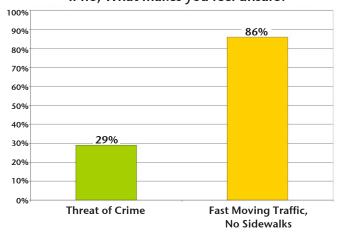
Did you Walk or Drive to the Bus Stop?



Two-thirds take the bus five days each week. Only 6% ride the bus less than one day each week. Riders at the stop are typically daily riders driving to the bus stop each day.

Although 72% responded that they feel safe walking to the bus stop, when asked what makes them feel unsafe, 86% responded that it is the fast-moving traffic and lack of sidewalks while 29% indicated that the fear of crime is what makes them feel unsafe. This information was very helpful as we approached the design phase of the study.

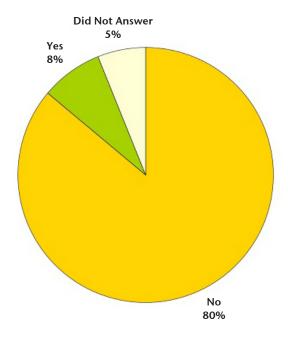
If no, What makes you feel unsafe?





Other responses that directly influenced the design prototypes included: while 81% of riders prefer to wait at a stop with a shelter and 72% prefer to wait under the shelter instead of out in the open, 84% indicated that there are not enough seats in the shelters.

Are there usually enough seats in the shelter to accommodate those who want to sit?



When asked about desired amenities at the bus stop, most respondents would like to have access to information on when the next bus was coming (79%) and bus schedules (72%). Better lighting (63%) and, again, seating (46%) were also very important.

How important would the following improvements be to you?

	Very Important	Neutral	Not Important
Bus schedules at the bus stop	70%	17%	13%
Information on when the next bus is coming	77%	16%	7%
Lighting	66%	24%	10%
An available seat	46%	26%	26%
Move the bus stop back from the road	25%	42%	33%

When asked an open-ended question to identify an improvement that could make waiting at the bus stop better, typical responses included:

- Knowing when the bus is coming
- Moving the bus stop back from the road
- More seating
- A bus schedule at the bus stop

When asked an open-ended question about an improvement that could make traveling to the bus stop better, typical responses included:

- More sidewalks
- Enforce the speed limits
- More parking

These responses also greatly informed the design process. A printed PowerPoint presentation of all survey results is included in Appendix M: PowerPoint Presentation of Bus Stop Survey Results.

2.3 Walking Tour of the Study Area

Representatives from the Airport Corridor Transportation Association and the design team agreed that the Stakeholder Committee members would be better informed of the challenges facing pedestrians and transit users if they walked the project area. Consequently, a walking tour was conducted during the second Stakeholder Committee Meeting on September 25, 2008. Accompanying the Stakeholder Committee and design team was Chris Noll of the Office of Vocational Rehabilitation, as well as committee member Richard Meritzer, the accessibility expert with Pittsburgh's Department of City Planning.

The Stakeholder Committee began and ended the walking tour at the Robinson Town Centre strip mall. Three existing bus stops were visited. (See the following page for a map of the walking tour.)

The tour participants quickly observed that few protected paths and sidewalks exist through parking lots or along the area roadways. Crosswalks and pedestrian signals were sparse and inconsistently furnished. Most notable, was the lack of accommodation and protections for those with physical and cognitive impairments. For example, some intersections included crosswalks and pedestrian signals, but failed to provide an accessible path due to the absence of curb cuts and sidewalks. The presence of "desire lines," marked by paths worn through the grass and vegetation, clearly illustrated the need for additional paved sidewalks, ramps, and steps. Existing sidewalks measured just four feet, a dimension that feels narrow in a wide-open suburban



context. Four feet accommodates two people walking abreast but does not provide a comfortable passing zone. The Access Board has released a draft of the Americans with Disabilities Act (ADA) Public Rights of Way Accessibility Guidelines, which specify that periodic five-foot minimum passing zones be provided.

Typical bus stops were located approximately five feet from the curb line and fast moving traffic. Often, they were sited along curvilinear roadways with limited views afforded to pedestrians and motorists, alike. Advertising panels incorporated into the bus shelters were located, appropriately, on the downstream side of traffic movement, but they often obstructed views of intersections. Each shelter contained a three-foot bench, however, no benches were provided out in the open beyond the limits of the shelter structures. Adjacent to each shelter was one trash receptacle. Nearby roadway and parking lot lighting provided some bus stop area lighting, but this was an incidental, rather than a purposeful, occurrence. Additionally, bus shelters were internally illuminated potentially creating a "fish bowl" effect at night. Finally, shelters at popular stops were undersized for the number of transit patrons using the stops.

During the course of the walking tour, the accessibility experts and Stakeholders made the following observations concerning bus stop site conditions:

- Environments lacking well-defined paths may not be negotiable by the visually impaired.
- Audible crossing signals can mask traffic noise, creating a threat where there is no 'pedestrian only' signal phase.
- Drivers need to learn that the roads are shared with pedestrians and bicyclists.
- Educational opportunities to inform the public about pedestrian crossing and "white cane laws" could be developed through cooperative efforts with local businesses.
- Municipalities were encouraged to enforce compliance with ADA regulations by property owners and tenants.
- Local signage ordinances should accommodate the visually and cognitive impaired by specifying light letters on dark backgrounds.



Map of Walking Tour Route



Specific design recommendations to improve accessibility included:

- Maintain consistency of design features and layouts for the visually impaired.
- Provide textural cues (yellow truncated domes) at curb ramps and edge conditions so that the visually impaired do not unknowingly wander into traffic.
- Provide zebra striping at crosswalks.
- Provide raised, rolled-edge crosswalks as a traffic calming measure.
- Provide crosswalk signage to alert drivers of the presence of pedestrian.

To enhance personal safety, Stakeholders recommended the following:

- Provide good area lighting. Avoid the 'fish-bowl' effect of night lighting at shelters only.
- Provide visibility to and from the bus stop.
- Avoid placement of advertising panels and landscaping that obstructs views or creates hiding places.

The Stakeholders also provided input on enhanced amenities that could be provided at bus shelters and stations:

- Allow for the installation of real-time automatic vehicle reporting (AVL) systems including electronic signage or cell phone messaging.
- Consider WiFi access.
- Provide solar panels to power lighting or signage systems.
- Encourage longer-term opportunities for hub/ transfer stations such as direct access to park and ride lots, indoor waiting, and retail support including Transit-Oriented Development (TOD).
- Provide bicycle amenities, such as bike lockers, at intermodal hub centers.



Existing Bus Stop Along a Busy Roadway

2.4 Typical Suburban Bus Stop Conditions

As described in the Request for Proposal, the work effort of the study is structured around the development of improvements to four different types of suburban bus stops that could be "replicable as prototypical placements." Based upon the examination of the data produced from the activities described above as well as the design team's field investigation of the existing area bus stops, the following situations were identified and confirmed by the Stakeholder Committee at the December 4, 2008 meeting as typical suburban conditions warranting improvement.

- A Bus Stop at a Hub Location (See Section 8)
- A Stop at a Suburban Retail Center (See Section 9)
- A Stop Along a Busy Roadway (See Section 10)
- A Stop at an Intermodal Transfer Center (See Section 11)

Each of the above prototypical conditions is well represented by specific sites located within the project area and is described in detail in its own section of the report.



Existing Bus Stop at a Hub Location



Existing Bus Stop at a Suburban Retail Center



3. Researching the Problem

3.1 Searching Existing Literature

In the summer of 2008, ACTA searched the Internet for previous studies of bus shelter safety issues. A total of sixteen articles were found that seemed to have relevance to the current study (Appendix P: Literature Search Bibliography). Summaries of these articles can be found at Appendix O: Literature Search Abstracts. Although the previous studies were useful, none seemed to directly address prototype bus shelter designs for a suburban setting.

3.2 What was Most Useful & Why





A broad array of bus stop literature has been previously published. It was the intent of the design team to review literature, learn from existing standards and critiques, and to use this information as a springboard for the design of safe bus stops in the project area. This study is not intended to catalogue the vast amount of material reviewed or to create a new set of design standards. Rather, the existing topical literature served as a foundation, inspiring solutions for practical application, and serves as a complement to this report.

All of the articles, documents, and guidelines reviewed during the literature search were thoughtfully produced and add important perspective to the pool of information available. Throughout the course of the study, additional material was recommended and forwarded to the design team. By no means, however, was an exhaustive literature search conducted. The identification of a clearinghouse of literature was not the focus or purpose of this study.

Please see Appendix O for Literature Search Abstracts prepared by ACTA and Appendix P for a Bibliography of additional articles, design standards, and related material reviewed during the study process.

The design team observed that available bus stop literature can be divided into at least four primary topics, or areas of focus, all of which attempt to define *Best Practices*:

- Personal and Women's' Safety
- Methods of Conducting Transit Stop Inventories
- Bus Stop Design Guidelines
- Pedestrian Roadway Safety
- Smart Transportation

The resources named in this section of the report are representative of these primary topics and were found to be some of the most helpful standards influencing this study.

3.3 Personal Safety/Women's Safety

Research papers published on the topic of personal safety point out that people, and women in particular, may have a heightened sense of vulnerability at poorly located or poorly designed bus stops. Perceived safety is as significant as actual crime statistics because many occurrences go unreported and the perception of threats will discourage use of transit.

The research report, Personal Safety and Transit: Paths, Environments, Stops, and Stations, prepared by Mary Vogel and James Pettinari and published in April 2002 by the University of Minnesota Center for Transportation Studies, succinctly itemizes the characteristics of a physical environment that cause people to avoid transit facilities and describes design countermeasures to enhance personal safety and inspire user confidence. In summary:

Personal Safety Design Principles

Ownership – Provide defensible space. Avoid conditions that appear isolated or unmonitored. Avoid isolated, poorly maintained conditions

Land Use/Activity – Provide "eyes on the street." Locate stops near other safe, active areas.

Visibility - Maintain views to and from transit stations with clear sightlines and lighting. Do not provide hiding places.

Mobility – Avoid "movement predictors" and conditions that "entrap." Meet or exceed accessibility standards.

Readability – Provide strong visual cues, clear paths, and understandable signage.



3.4 Methods of Conducting Transit Stop Inventories

The Easter Seals Toolkit for the Assessment of Bus Stop Accessibility and Safety takes a thoughtful approach to describing how bus stops must function to meet the needs of people with disabilities. It identifies the principles of accessible bus stop design, provides a clear system for conducting a bus stop inventory, describes the specific components of an accessible and safe bus stop, addresses the need for interdepartmental collaboration and driver training, and features technological advances that can improve bus stops. Most significantly, the Easter Seals toolkit promotes universal design:

The ADA Standards are the minimum requirements that comply with the law. They are not "best practices." Universal design is intended to create environments that are more usable by all people including people with disabilities.

3.5 Transit Stop Design Guidelines

Accessing Transit: Design Handbook for Florida Bus Passenger Facilities prepared for the Florida Department of Transportation Public Transit Office by the Florida Planning and Development Lab, Florida State University in March 2004 and the again in 2008 provides an excellent catalogue of the components that comprise a successful bus stop. This cataloguing of bus stop amenities is divided into curbside features and street-side features. The study goes on to propose prototypical layouts; however, these design schemes were found to be inappropriate for Western Pennsylvania's rolling landscapes and limited rights of way. The 2004 edition also included a site selection flow chart.

Many of the bus stop design guidelines reference or reproduce data, charts, and diagrams published in the 1996 hallmark report by the Transit Cooperative Research Program in TCRP Report 19 – Guidelines for the Location and Design of Bus Stops.

3.6 Pedestrian Roadway Safety

The U.S. Department of Transportation Federal Highway Administration published Pedestrian Road Safety Audit Guidelines and Prompt Lists in July 2007 and Pedestrian Safety Guide for Transit Agencies in February 2008. These documents describe strategies to increase pedestrian safety in the vicinity of roadways and transit stops. A broad array of issues are addressed in the two publications ranging from connectivity, obstructions, traffic controls, lighting, visibility, sidewalk design, roadway crossings, bicycle considerations,

transit vehicle design, transit stop locations and design, and legal issues.

3.7 Smart Transportation

The Smart Transportation Guidebook – Planning and Designing Highways and Streets that Support Sustainable and Livable Communities published in March 2008 is the result of a partnership between the Pennsylvania and New Jersey Departments of Transportation.

The goal of the Guidebook is to integrate the planning and design of streets and highways in a manner that fosters development of sustainable and livable communities. The Guidebook has equal applicability to rural, suburban and urban areas.

The Guidebook defines the six principles of smart transportation, one of which is to:

Plan for alternative transportation modes. The needs of pedestrians, bicyclist and transit users must be considered in designing all roadway projects. Sidewalk networks should be well connected with opportunities for regular, safe street crossings. On collector and arterial roadways, bike lanes or wide curb lanes can encourage people to bike rather than drive for short and moderate distance trips. If a roadway is designed to discourage vehicular speeding, it can be comfortably used by pedestrians and bicyclists alike. Transit friendly design should support a high level of transit activity. By encouraging alternative transportation, communities can break the pattern of sprawling suburbs with rapidly multiplying vehicular trips and congestion.

The Smart Transportation Guidebook not only defines the principles of smart growth but also describes the elements of safe intersections, mid-block crossings, crosswalk treatments, bicycle facilities, and bus stop placements and amenities.

In conclusion, a wealth of literature on bus stop design exists in the form of articles, reports, guidelines, and publications. Although, it is sometimes conflicting, generally consistent themes concerning the placement and fit-out of bus stops emerge and are discussed in Section 6 – Bus Stop Characteristics and Amenities. What is clear, despite rules of thumb and guidelines, is that each potential bus stop location must be individually evaluated and developed to optimize the safety and security of transit patrons. Knowledgeable professionals should play a part in the design of each bus stop.

4. Tapping Local Expertise

4.1 Stakeholder Participation

The Safety and Security at Suburban Bus Stops project benefited greatly from the input of the Stakeholder Committee members. Their insights and observations, as well as their optimism and skepticism, was critical to identifying both the restrictive challenges to and the viable solutions for creating safer, more inviting bus stops within a car-oriented environment. This study was well served by an engaged group of Stakeholders who each contributed significantly to the dialogue.

Four Stakeholder Committee Meetings were conducted at a location within the project area prior to the development of this Summary Report. The first meeting was held prior to the selection of the design team. The second meeting, held on September 25, 2008, provided an opportunity for Stakeholder Committee members to participate in a walking tour of the study area, to share their observations about existing bus stop deficiencies, and to identify opportunities for improvement.

At the third Stakeholder Committee meeting, conducted on December 4, 2008, the design team presented a summary of data collection activities: the results of User Surveys and individual Stakeholder Interviews were reported, information gleaned from the Literature Search was summarized, conflicts discovered during the Review of Local Zoning Ordinances between regulations and field conditions were revealed, and observations made during Site Visits to all of the existing bus stops located throughout the project area were shared. (A summary of each of these data collection activities is located elsewhere in this report.) Importantly, at the second meeting, the Stakeholders were asked to confirm a list of performance criteria describing Safe Bus Stop Characteristics and Amenities and to confirm the four sites that would serve as the basis of the Suburban Bus Stop Prototypes.

The fourth Stakeholder Committee Meeting was held on March 13, 2009. Input gained from additional individual Stakeholder Interviews was shared, design challenges were summarized, the list of bus stop performance criteria was expanded and endorsed, and proposed Bus Stop Prototypical designs were presented.

As suggested above, the design team met with the Stakeholders in small working groups or individually to conduct Stakeholder Interviews between the first and second Stakeholder Committee Meetings. Similarly, technical review of the proposed Bus Stop Prototypes was sought between the



Photo of Stakeholders at a Suburban Bus Stop

second and third Stakeholder Committee Meeting from our Stakeholders who possessed engineering or accessibility compliance expertise. These interviews, in addition to full committee meetings, provided valuable insights and feedback throughout the study process.

It is worth noting that the Stakeholder Committee was not a complacent group of individuals. Each Stakeholder offered a different perspective on the challenge of providing safe bus stops. (The composition of the Stakeholder Committee is described in Section 1.) The Stakeholder Committee Meetings were animated and the members were highly engaged, offering an important debate of the challenges to be overcome and opportunities to be grasped within the study area. As a result, the group as a whole became better informed of the physical, economic, regulatory, and social conditions restricting opportunities that are to be overcome in order to achieve improved pedestrian-friendly suburban bus stop designs.

One of the most important outcomes of the Stakeholder involvement process was the establishment of a consensus that the Safety and Security at Suburban Bus Stops project would purposefully be biased toward promoting pedestrian safety over vehicular safety in order to avoid compromised solutions and to counteract the lack of pedestrian and transit user amenities to be found in the existing vehicle-dominated project area.

Key considerations influencing the design of Bus Stop Prototypes identified during the Stakeholder Interviews follow.



4.2 Transit & Planning Agencies

A meeting focusing on the characteristics of the central Hub Station within the project area was held at the offices of Port Authority of Allegheny County on October 29, 2008 and was attended by representatives from Port Authority of Allegheny County (PAAC), Southwestern Pennsylvania Commission (SPC), Allegheny County Economic Development (ACED), Airport Corridor Transportation Association (ACTA), and Maynes Associates • Architects, LLC (MA•A).

It was observed that the Hub Stop, located at IKEA, is to serve as a transfer center between PAAC and BCTA and serves the commercial district in Robinson, while Port Authority's future Intermodal Transfer Station, to be located at Montour Church Road is to serve as an intermodal park and ride facility. MA•A agrees with the assessment of Mackin Engineers, published in the *Commercial Center Mobility Study*, that these are two different functions and that both should be developed as key stations.

The project area is an evolving region characterized by suburban-type development. However, more efficient land uses and the promotion of transit use are evidenced by the fact that the "Allegheny County Plan" has identified Robinson Town Center, located within the project area, as a future Life Style Village. Further, the presence of existing and planned bus stops allow projects to rank higher in Pennsylvania Department of Transportation (PennDOT) funded projects per its Smart Transportation standards.

The location of bus stops at intersections was discussed in detail. PAAC indicated that stops located on the far side of an intersection are considered to be safest because pedestrians were less likely to dart out in front of traffic. Near side bus stops are preferred for operational efficiency since buses do not need to stop both before and after crossing through an intersection. Subsequently, the design team determined that specific site conditions would dictate whether a bus stop provides a safer condition at the near side or far side of an intersection and that a one-size-fits-all approach should not dictate decisions about the siting of bus stops. In all cases, the bus drivers' views of a stop and shelter must be maintained. Further, view angles at intersections, which are defined by PennDOT and by the local municipalities, must be preserved in order the meet regulatory requirements aimed at improving intersection safety. Due to the focus of this project, prototypical bus stop designs developed as a part of the study have put safety above operational efficiencies.

The Stakeholders requested that bus bays, or bus pull-offs, be investigated by the design team. Subsequently, the design team demonstrated the difficulty of incorporating bus bays into retrofit solutions in Western Pennsylvania.

Bus bay challenges include:

- Existing rights of way may not accommodate the prerequisite 12-foot shoulders.
- Roadways punctuated with driveways may not accommodate the required acceleration and deceleration tapers for entering and exiting the bus bays at moderate and high speeds.
- Often, multiple corners of an intersection must be available for reconfiguration in order to accommodate movements into and out of bus bays located at intersections.
- It is difficult for a bus to re-enter traffic from a bus bay.
- Bus bays offer less control for the bus driver.
- Bus bays provide greater convenience for the motorist who wishes to maintain momentum, rather than enhancing pedestrian and bus safety.

The availability of public right of way versus utilizing private property was discussed. Bus stops and associated access, including parking, located partially or wholly on private property are subject to changes in property management philosophy and third party cooperation. The prototypical bus stops developed as a part of this study reflect varying conditions. The group urged the design team to provide better stops without restricting their siting to public rights of way.

The Stakeholder group also determined that desirable bus stop amenities include: curb cuts and sidewalks, shelters, benches, trash receptacles, bike racks, lighting, signage, AVL systems, and emergency call boxes and agreed that newspaper vending and public telephones are not required.

During a separate teleconference on November 24, 2008, representatives from the Beaver County Transit Authority shared the following insights. The majority of BCTA's existing stops are located at the nearside of an intersection because BCTA bus drivers feel they can achieve a higher level of control and, consequently, maintain a higher level of safety at that location. Typically, BCTA buses are required to pull over to the curb, however, when accessible sidewalks are lacking, mobility-impaired riders must board and disembark in unsafe driveways or roadways. BCTA observed that the accommodation of transit service and transit riders is typically an afterthought in the suburbs. Additional recommendations made by BCTA include: provide solar-powered lighting and signage at bus shelters and provide adequate seating for peak demand. It was also observed that third party agreements, which would be required along streets with narrow right of ways in order to provide more generously proportioned shelters located on private property, may prove to be onerous to execute.



Postscript - The design team agrees that legal and economic agreements are as significant a challenge, if not a greater obstacle, to executing retrofit bus stop designs as are physical barriers (such as sloped streets and narrow sidewalks).

Finally, at a Stakeholder interview conducted on January 16, 2009, Port Authority of Allegheny County (PAAC) reported that a reassessment of PAAC service is underway including an examination of a new suburban model of service. In the future, PAAC may provide Bus Rapid Transit (BRT) to transfer stations that, in turn, are supported by local shuttle service such as that facilitated by ACTA in the airport corridor. PAAC reaffirmed their intent to develop an Intermodal Transfer Center on the Montour Church Road site, which is owned by PAAC and located in the project area.

4.3 Retail Mall Managers

During several teleconferences conducted on November 10, 2008 with retail mall managers, it became apparent to the design team that attitudes about the benefits or drawbacks of bus stops are directly linked to socio-economic challenges.

The author of this study is not a sociologist, yet, has observed that society's tendency to segment itself into different groups plays a role in whether or not public amenities such as bus shelters are viewed as a benefit to a community. Where acts of vandalism are prevalent, bus stops are viewed as potential targets of and locations for acts of aggression. (Please refer to Section 3 for a summary of design considerations that can diminish the real or perceived threat to personal safety.)

Typical challenges faced by mall managers when accommodating transit facilities include:

- Bus stacking can obstruct the path to the entrance for other vehicles and pedestrians.
- Parking lot paving deforms from heavy buses stopping and starting.
- Buses cause wear on paving throughout the parking lots.
- Bus riders may congregate in large numbers.
- Bus riders may not use litter receptacles.
- Shelters are vandalized.
- Designated pedestrian paths go unused if they do not occur along a beeline path.
- Bus riders complain about the long walk to mall entrances from remote bus stops.

Mall managers would welcome assistance with bus stop maintenance. Similar challenges exist when attempting to accommodate convenient bus stop locations at retail establishments in general. In contrast, a bus shelter located within the study area at a smaller regional mall, where the bus stop has light traffic and is used primarily by employees of the mall, is well maintained and suffers little or no vandalism.

4.4 Pennsylvania Department of Transportation

Following a teleconference on November 4, 2008, Pennsylvania Department of Transportation's (PennDOT) Division 11 promptly forwarded the following "Right of Way Agreement Requirements" to the design team:

- Bus Shelter Checklist
- Sight Distance Calculations
- Standard Bus Shelter Agreement with Exhibits:
 - Transit Shelter Installation Standards
 - Ad Company Revised Indemnification
 - ADA Provisions, amended 1/16/2001
 - Commonwealth's Standard Contractor Responsibility Provisions

PennDOT's Standard Agreement requires that shelters be installed only at legitimate stops established by the transit authority having jurisdiction, or if no such transit authority, the Public Entity.

4.5 Shelters' Owner Lamar Advertising

Lamar Advertising has played an important role for bus users by providing many of the existing bus shelters located throughout the project area. Without the participation of such private enterprise few, if any, bus patron amenities would be found. Through the exchange of email on November 20, 2008 and December 1, 2008, a Lamar representative affirmed, "Making sure that shelters are safe for bus patrons is a priority for Lamar Advertising."

4.6 ADA Expert

The design team met with the City of Pittsburgh's accessibility expert on February 26, 2009. Many features of prototypical designs were discussed in detail. Specific recommendations included:

- Bollard spacing must not be less than five feet apart.
- Provide accessible seating both inside and outside the shelters.
- Post legible transit maps and schedules at the bus stops to serve those who do not have access to electronic reporting devices, such as cell phones with web access.



- Accent warning strips are to offer both a visual (light/dark) and textural contrast.
- Overhead items including landscaping features, such as hanging baskets, must be high enough above the ground so as not to be a hazard to the visually impaired.
- Bus stops should be simple, clear, un-crowded, and functional.
- High levels of decoration can add confusion for low-sight individuals.
- Transfer stations should accommodate on-demand transit service, such as ACCESS or DART, by including an accessible drop off for smaller transit buses.

4.7 Engineering Consultants

Engineering insights were provided by members of both the Stakeholder Committee and the design team at two meetings held in mid-February 2009:

- At retail box stores, provide directional signage to store entrances.
- Bus shelter designs should not obstruct visibility into and out of shelters.
- Bus shelters should not obstruct required view angles at intersections.
- The placement of bollards along curb lines should be based upon vehicles movements and my need to precede bus stops along roadways, where traffic runs parallel to the curb line, and occur within bus stops at parking lots, where traffic may run perpendicular to curb lines.
- Bus stops should be located as close to the corners of an intersection as feasible in order to prevent cars from cutting into the traffic lane in front of the buses.
- Bus bays, or pull-offs, are meant to keep traffic moving rather than enhance pedestrian safety.
- Bus hailing systems should be provided at larger bus stops and stations.
- Relocating bus stops to straighter sections of roads to provide improved view angles is desirable.

4.8 Local Townships

Please refer to Section 5 for a summary of zoning impacts, the primary focus of discussion during a meeting at the offices of ACTA on November 7, 2008 with representative of each of the three municipalities, Robinson, North Fayette, and Moon Townships.



5. Local Zoning Ordinance Reviews

5.1 The Purpose of Zoning Ordinances

It is a wise step, in the implementation of any site development or architectural project, to review local zoning ordinances early in the design development process. Local zoning ordinances are intended to preserve and/or enhance the character of the various areas (or zones) of our communities. They regulate the types of occupancies (or uses) that can be located on a parcel of land or within a public right of way and impose protective restrictions on the physical configurations and features of potential designs.

Zoning ordinances continue to evolve over time in reaction to undesirable changes that emerge in the physical characteristics of individual pieces of property and to entire neighborhoods or districts. Once one property is perceived to be declining in its appeal, the surrounding area is negatively impacted. As an example, industrial or heavy commercial establishments inserted into residential areas have typically created a change in noise levels, air pollution, building sizes, land coverage, and quantity of traffic. Such conditions result in visual and functional discontinuity and are often followed by an erosion in the value of nearby properties.

Most zoning ordinances are accompanied by a zoning map, which divides a municipality into zoning districts of varying and complementary occupancies. Zoning ordinances include prescriptive clauses outlining a minimum level of performance for each zoning district. Conditions described can include allowable occupancies, allowable percentages of land coverage, building size and height limitations, front/ side/rear yard setbacks, the placement of ancillary structures within a land parcel, and parking to building area ratios. Signage, which in many communities has quickly emerged as one of the most dominate features in the landscapes, is controlled by regulations defining the size, placement, and types of signage allowed within various zoning districts. Other performance characteristics that are included in some zoning ordinances are requirements for landscaping, fencing, architectural features, paving materials, and building cladding materials.

5.2 Review of Local Zoning Ordinances

One of the early steps taken in the course of ACTA's Safety and Security at Suburban Bus Stops Project was the review of the three local zoning ordinances. The design team examined the zoning ordinances of Robinson Township, North Fayette Township, and Moon Township to determine if the regulations:

- 1.) Permit the construction of pedestrian and bus stop facilities at the various prototypical placements,
- 2.) Establish any existing performance criteria for such facilities, and
- 3.) Define performance criteria that enforce a standard of design that would achieve the desired level of safety and security.

5.3 Meetings with Township Managers and Planners

A review of the local zoning ordinances was conducted. The results, which were somewhat surprising, were shared first with township representatives and, later, with the entire Stakeholder Committee. (The summary presented to township representatives can be found in Appendix N.)

The scan of the three ordinances revealed that current, and potentially future, bus stop shelters are in conflict with four categories of zoning restrictions:

- Restriction Prohibiting Structures (Bus Stop Shelters)
- Restriction Prohibiting Billboards (Advertising Panels)
- Requirements for the Maintenance of Clear Sight Triangle Mandates
- Requirements for the Maintenance of Setbacks and Buffer Zones

The first three requirements impact the public right of way. The forth condition addresses the development of property parcels.

Restriction Prohibiting Structures (Bus Stop Shelters)

As written at the time of the study, all three township zoning ordinances prohibit the erection of structures in the public right of way. Note that the presence of bus stops is not restricted. Rather, "structures" are disallowed. Bus stop "shelters" can be considered structures. Unfortunately, it is the shelters along with other amenities that make the bus stops more comfortable for transit patrons.



Restriction Prohibiting Billboards (Advertising Panels)

In general, prototypical bus stop sites selected for this study are located within designated "Business" or "Commercial" districts. In the case of Moon Township, where a prototype along a busy roadway is proposed, the site falls within an overlay district, which defines additional landscaping and performance characteristics for the University Boulevard corridor. The requirements of the overlay district should produce a more accessible and attractive environment over time. The types of signage allowed in business and commercial districts are also tightly defined. Restrictions on signage represent a significant impact since the existing bus shelters incorporate advertising panels that would be categorized as "billboards." For example, a billboard is defined in the Zoning Ordinance of the Township of Robinson as, "an off-premises sign which advertises an establishment, an activity, a product or a service which is unrelated to or unavailable on the premises on which the sign is located." There appears to be no other categories of signage that more accurately applies to the advertising panels integrated into the existing bus shelters.

Requirements for the Maintenance of Clear Sight Triangle Mandates

All three local zoning ordinances require that unobstructed sight triangles be maintained at intersections to preserve views of oncoming and turning vehicles. This is a significant safety feature mandated at both the local and state level. PennDOT publishes a detailed matrix of clear site triangles that are based upon travel speeds and roadway gradients, both of which affect response time.

Requirements for the Maintenance of Setbacks and Buffer Zones

As discussed earlier in this Section, development patterns and densities within a community can be controlled by requiring consistent front, side, and rear yard setbacks. A setback, or a buffer zone, is the area around the perimeter of a parcel of property where structures may not be erected. Often, zoning ordinance require that landscaping be provided within these zones. In the suburban commercial districts of Robinson, North Fayette, and Moon Townships, requirements to maintain a clear open buffer zone along property lines could restrict the placement of bus shelters on private property unless variances for bus stops are allowed and granted. Where the public right of way is very narrow, flexibility to negotiate multi-party agreements allowing bus stops to be placed on both public and private property should be maintained.

5.4 A Pennsylvania Precedent for Bus Stop Zoning Ordinances

The conflict between existing local zoning ordinances and bus stop amenities was also discussed during stakeholder interviews. It was noted that in recent years, the City of Altoona, Pennsylvania has approved and incorporated changes to its zoning ordinance in order to allow for the presence of street side bus stop amenities and shelters. The *Altoona Planning Code* can serve as a precedent for the project area municipalities.

5.5 Recommendations to Amend Local Zoning Ordinances

Robinson, North Fayette, and Moon Townships should develop amendments to be made to each local zoning ordinance to accommodate the installation of the prototypical bus stop concepts, or for that matter, the existing bus stop shelters. The following examples and suggestions, drawn from or inspired by the *Altoona Planning Code*, are put forth for consideration; however, the design team recommends that each township employ the services of a professional consultant to develop and integrate the specific language appropriate for inclusion within each respective ordinance.

List "bus shelters" as a permitted use OR include language similar to the following, drawn from the *Altoona Planning Code*, under each zoning district where bus stops are NOT prohibited:

Special Exceptions

The following uses may be permitted by the Zoning Hearing Board if it finds the conditions listed for the use are met. The Zoning Hearing Board may work in conjunction with the Planning Commission in granting approval.

Bus Shelters

- 1.) Shall not impair sight distances at intersections or otherwise pose a hazard to moving traffic.
- 2.) Shall not contain advertising of any kind except deification of the bus company, and a posing of relevant schedule and service information.
- 3.) Shall be perpetually maintained and kept clean and sanitary. This guarantee can be made through an agreement or other binding legal instrument.
- 4.) Shall not be placed on private property without the owner's consent.



- 5.) Shall be completely removed and the site restored to its original condition if the location no longer warrants a shelter. This guarantee can be made through an agreement or other binding legal instrument.
- 6.) Shall not interfere with adjacent property owner's use and enjoyment of property.

Note that the sign types to be allowed in the future at bus stops should be carefully stipulated. Multiple transit providers serve several of the bus stops located within the project area. Some existing and proposed bus stops are located at retail centers. The municipalities may continue to hold agreements with advertising vendors. Each of these considerations could impact the type of signage that is to be permitted.

Statements should also be developed clarifying whether parking is to be associated bus shelters. Typically, bus shelters have no dedicated parking associated with them. However, a larger transit facility, such as an Intermodal Transfer Center, often provides parking and bus patron amenities that include bus shelters or bus patron structures.

The following stipulations, also drawn from the *Altoona Planning Code* may be integrated into existing zoning ordinances:

Transit Facilities

Where a proposed subdivision is to be located along or within reasonable walking distance of an existing or proposed transit route, the developer shall provide the bus shelters, and provide any pull-offs for transit vehicles at bus stops as determined by the Commission in consultation with the transit authority.

Note that the design team does not recommend bus pull-offs as a safety feature of bus stops.

Furniture

If the proposal is to be directly served by a bus stop, a bench shall be placed at the bus stop location.

Note that the design team recommends several benches be provided inside a shelter and out.

Each of the three municipalities has a unique Zoning Ordinance that requires thorough review and revision in order to avoid conflicts between potential bus shelter zoning amendments and the existing text.



6. Proposed Bus Stop Site Characteristics and Amenities

6.1 A Two-Fold Design Focus

After the completion of the data collection phase of the project, where ACTA and the design team sought Stakeholder input, walked the project area, prepared an inventory and examined each existing bus stop, surveyed bus riders, conducted a literature search, and reviewed local zoning ordinances, a list of desired safety features and enhancements was developed. The design team understood our charge to be two-fold:

- Develop prototypical designs representing preferred placements and site characteristics of bus stop facilities, and
- 2.) Identify the specific amenities to be provided at the various bus stop conditions.

A review of existing literature revealed that bus stop design standards have been well defined in recent years. The design team utilized the articles, guidelines, and standards described in Section 3 as the spring point for developing prototypical bus stops for Pennsylvania's suburban environments.

6.2 Safe Bus Stop Site Characteristics

While developing prototypical site design concepts, the design team focused on identifying sites that were conveniently located and strategies to improve access to each site. The prototypes, described in Sections 8, 9, 10, and 11 of this report, respond to the challenges of suburban site features and the pedestrian experience. The flow of pedestrian and vehicle movements strongly influenced the design results. Preferred bus stop locations embody the following characteristics:



Clear, accessible pathways

Clear, accessible pathways – Bus stops do not facilitate mobility if bus riders cannot get to them. Bus pads must be accessible from paved pathways that are kept free of mud and debris and cleared of snow and ice. When bus stops are located along busy roadways or adjacent to parking lots, accent warning strips in a contrasting texture and color, such as rustic terrazzo or brick, located along curb lines can enhance the safety of those with visual impairments.

Protected crossing – Traffic poses a threat to those on foot. Bus stops should be located at signalized intersections with crosswalks and pedestrian crossing signals when possible. For bus stops located in mid-block conditions or at unsignalized intersections, other pedestrian protections should be provided such as crosswalks clearly demarcated with zebra striping, crosswalks with raised rolled-edges, pedestrian crossing signage, and flashing warning lights.



Protected crossings

Visible sites – Bus drivers must be able to view bus stops. (Typically, local buses to not stop if patrons are not waiting to board or disembark.) Similarly, bus riders must be able to see and hail approaching buses. Maintaining site lines between motorists and both pedestrians and other motorists is critical to reducing accidents. The landscaping, structures, and signage located at or near bus stops should be carefully configured to avoid obstruction of views.

Sites near activity generators – The location of bus stops should be based upon the demand for service. However, bus stops should not be banished to the remote periphery of key activity generators and commercial sites. Bus stops should be conveniently located within a comfortable walking distance of popular destinations.

Level sites – The rolling landscape of Western Pennsylvania poses a challenge for developers who often respond by providing roadways with steep slopes, roadways with limited shoulders, and developments on dramatically terraced sites that create vertical separations between commercial establishments. This topography can makes it challenging to provide the desired safe sidewalk systems and level bus stop sites

6.3 Safe Bus Stop Amenities

After preferred bus stop sites were identified, the design team focused on the specific bus stop amenities and features that would provide a safer, more comfortable and more inviting experience for bus patrons. Preferred bus stops include the following amenities:

Bus Sign pole – A bus sign pole should be a unique shape and texture so that it is recognizable to low-vision individuals. The placement of the bus sign is critical, for it identifies the bus boarding position. The bus sign is to be positioned adjacent to a 60" by 96" minimum accessible bus pad.

Call systems – Port Authority of Allegheny County (PAAC) provides emergency call buttons along its fixed guideways, roadways owned or leased by PAAC that are dedicated solely to bus rapid transit or light rail service. On public property, similar paging systems that tie into local municipal emergency systems should receive further study. Bus hailing devises such as the I-Stop system should be provided for the convenience of the mobility impaired and an aging local population. I-Stops are solar-powered bus stop illumination systems featuring a flashing beacon that notifies bus drivers of a stop request, overhead security lighting, and an illuminated transit schedule.

Real Time Bus Information Equipment – Digital signage and/or annunciation systems that are tied into an Automatic Vehicle Location (AVL) system, such as that currently provided at Beaver County Transit Authority (BCTA) facilities, could be mounted within bus stop shelters. However, new cellular phone-based information delivery systems such as "Route Shout" may soon supplant older technologies. Bus shelter and bus stop designs should not prohibit adaptation to accommodate future information technologies.

Bus service maps and routes – Access to bus schedule and arrival information was one of the highly requested amenities identified by the Bus Rider Survey. Traditional printed maps and schedules should be provided within the bus shelters for those who will not have access to newer technologies,

Advertising Panels and Information Kiosks – The Stakeholder Committee did not identify advertising panels as a required amenity; however, the design team recognizes

that they provide revenue-generating opportunities. concern is the way internally illuminated advertising panels are integrating into bus shelter side panels. They are often angled, reducing the amount sheltered space available to bus riders. They often obstruct the required "view triangle" which is a safety feature to be maintained at intersections. Bright signs provide glare and distractions for



Information kiosk/advertising panel

motorists at locations where their attention should be focused on the road and pedestrians. The panels are most easily viewed by bus patrons and should be designed for that population and not motorists. Their value as an added distraction to motorists can be debated.

The design team proposes freestanding information kiosks as an alternative to shelter-mounted advertising panels. The location of information kiosks can be flexible. They can also serve multiple purposes by displaying transit route maps and timetables or community announcements and information on local attractions and businesses.

Bus shelter with wind-screening and opaque roof – The design of bus shelters should take into consideration typical weather conditions and user volumes. Weather-resistant materials that minimize maintenance costs while maintaining user comfort and a desirable appearance are recommended. In Western Pennsylvania, we enjoy four distinct seasons,



Wind-screening and opaque roof

requiring comfortable shelters to protect bus patrons from wind, rain, snow, and sun. Opaque roof systems are preferred to translucent or transparent roofing to provide sun shading. The extent of side enclosures is to carefully balance wind-screening conditions with free and open access in and out of the shelter. Conditions that could result in someone being trapped by a predator are to be avoided.

Staying warm in cold and wet weather is a challenge where open shelters or no shelters are provided. The design team noted that heating systems that attempt to raise the temperature of the air would be inefficient and less effective than radiant heating systems. Strategies for heating shelters should be explored as a separate study. Paving, seating, or "leaning poles" that incorporate radiant heating could be explored. The cost of energy consumption might be addressed by systems requiring patrons to pay for usage.

Lighting – The lighting conditions of a site should be examined for safety and security. Shelter-only lighting can create a "fish bowl" effect. Therefore, general area lighting should be provided utilizing light fixture with cut off angles that do not create light pollution. Advances in solar-powered, light emitting diode (LED) technologies should be examined for their feasibility in this cloudy climate. The design team verified that a typical shelter could be supported by solar-powered LED light fixtures.



Solar-powered lighting



I-Stop



Seating and trash receptacle



Landscaping





Bike racks

Image Courtesy of Carmanah

Seating – The Bus Ride Survey identified the need for additional seating. To provide additional covered seating, larger shelters and/or more shelters are required. Typically seating is not provided outside of the shelters but is desired by bus patrons. Sectionalized benches can be specified to discourage their use as sleeping surfaces. Each bench should be sized to serve the anticipated capacity. It is important to place each bench in a manner that allows an individual in a wheel chair to sit next to members of their party, whether within the shelter or in the open.

Trash receptacles – Trash receptacles should be located adjacent to each shelter and in open seating areas. Receptacles should be located along a path of travel without obstructing it. Each trash receptacle should be sized to serve the anticipated capacity.

Bicycle racks – Bicycle racks, or bike lockers located at larger stations, should be sized to serve the anticipated capacity. They should not obstruct accessible pathways.

Landscaping – Landscaping not only enhances the aesthetics of a site but also can provide functional value. Through the thoughtful use of indigenous vegetative species that require minimal maintenance, soil erosion can be diminished, shade can be provided, and storm water run-off can be reduced.



6.4 Other Considerations

Green Design – Sustainability is an important factor impacting the design of a bus stop. Green design strategies include: the use of local materials, products, and plant species; reductions in energy use through the use of solar or LED technologies; the natural disbursement of storm water run-off into landscaped features, and the accommodation of multi-modal transportation options.

Public Image – For those who take public transit, the bus stops serve as the front door to the commercial districts located in the project area. While bus stops should maintain consistent design features and layouts for ease of use by those with visual or cognitive impairments, each bus stop could be adapted to echo local architectural, environmental, commercial, or historical themes.

Engagement of Local Businesses – Sections 9, 10, and 11 of this report touch upon strategies to engage local businesses and service providers in the development, enhancement and maintenance of bus stops.



7. Design Challenges

7.1 The Challenge of Retrofitting Exiting Pennsylvania Bus Stops

The prototype designs proposed in this report are retrofits to existing bus stops and are, consequently, subject to the limitations imposed by current conditions. This study specifically examines the type of challenges that are found in Western Pennsylvania commercial suburban communities. Design challenges include, but may not necessarily be limited to:

- Poor site lines.
- Heavy and/or fast moving traffic.
- Non-accessible sites / lack of ADA compliance.
- Small existing bus stop pads, if any.
- Topography hilly conditions.
- Narrow or limited rights of way.
- Climate rain, snow, wind, sun, hot and cold temperatures.
- Buried utilities and above-grade obstructions.
- Lack of area lighting.
- Lack of public sidewalks and crossing protections.
- Volume of usage.
- Automobile mentality.
- Multiple party agreements and cooperation.
- Township contracts with multiple shelter vendors.

The design team wishes to emphasize that the nature of this study was reactive in an effort to improve the existing built environment.

7.2 The Balance Between a Real Site and Designing a Prototype

The prototype designs were inspired by the conditions of four specific sites, but are intended to be applicable to a broad range of potential suburban settings. The design of the proposed prototype bus stops intentionally tested the potential of actual sites, including improvement to pathways, the placement bus stop and the configuration of bus stop amenities; however, the design team attempted to keep each proposed prototype generic enough to apply to similar conditions located elsewhere. Consequently, the proposed prototype bus stops will require adaptation to specific site conditions and challenges, such as those named above, if implemented at other sites throughout Pennsylvania.



8. Prototype I - Busy Roadway Bus Stop

8.1 Existing Conditions Along a Busy Roadway

Busy roadways funnel traffic through Robinson Town Centre, through The Pointe at North Fayette, and along University Boulevard in Moon Township in a manner that is challenging and frustrating for both motorists and pedestrians alike. During periods of time when traffic volumes are low, factors such as higher travel speeds, confusing access patterns, and unreadable signage combine to make way-finding difficult for motorists, while increased traffic speeds pose a danger to pedestrians forced to share the roadway due to a lack of a contiguous sidewalk systems. Conversely, when the roadways are congested and traffic is moving slowly, motorists are often more aggressive about making progress and may exercise a lesser degree of care towards pedestrians. These suburbs are typified by inadequate pedestrian pathways and crossing protections. Commercial destinations are spread out. Thus, transit riders can expect to walk significant distances to and from busy roadway bus stops in unguarded conditions.



Close-up Map of Prototype I - Busy Roadway Bus Stop



Map of Prototype I - Busy Roadway Bus Stop



8.2 The Selected Busy Roadway Site: University Boulevard

The intersection of University Boulevard and Brodhead Road / Beaver Grade Road in Moon Township was selected to be representative of a preferred bus stop location along a busy suburban roadway. This site is located at an intersection with exiting traffic lights, crossing signals, and crosswalks, features that are desirable at any commercial area intersection. The current diagonal curb cuts, however, potentially place pedestrians in the path of moving traffic. PennDOT's revised accessibility standards, published in November 2008, require curb cuts to occur beyond the radius of a corner.

While the current lack of contiguous pedestrian pathways is noteworthy, Moon Townships' University Boulevard Overlay Zoning District calls for the installation of sidewalks and landscaping at current and future developments. This incremental approach to infrastructure improvements, however, can create a patchwork quilt of pedestrian amenities as previous landowners or tenants are exempted from more restrictive zoning standards and are not required to install such improvements unless other site upgrades are implemented.



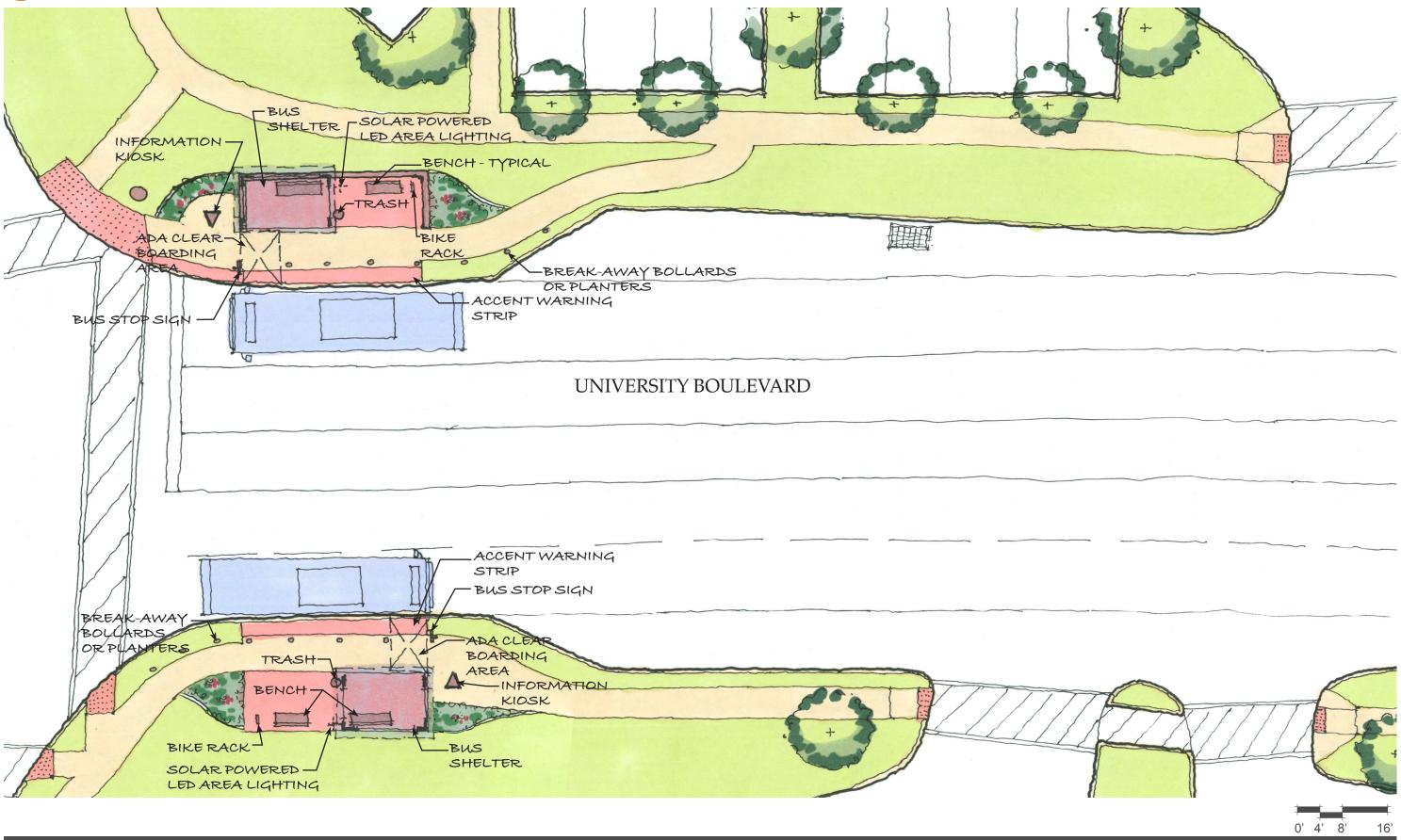
Existing Busy Roadway Bus Stop



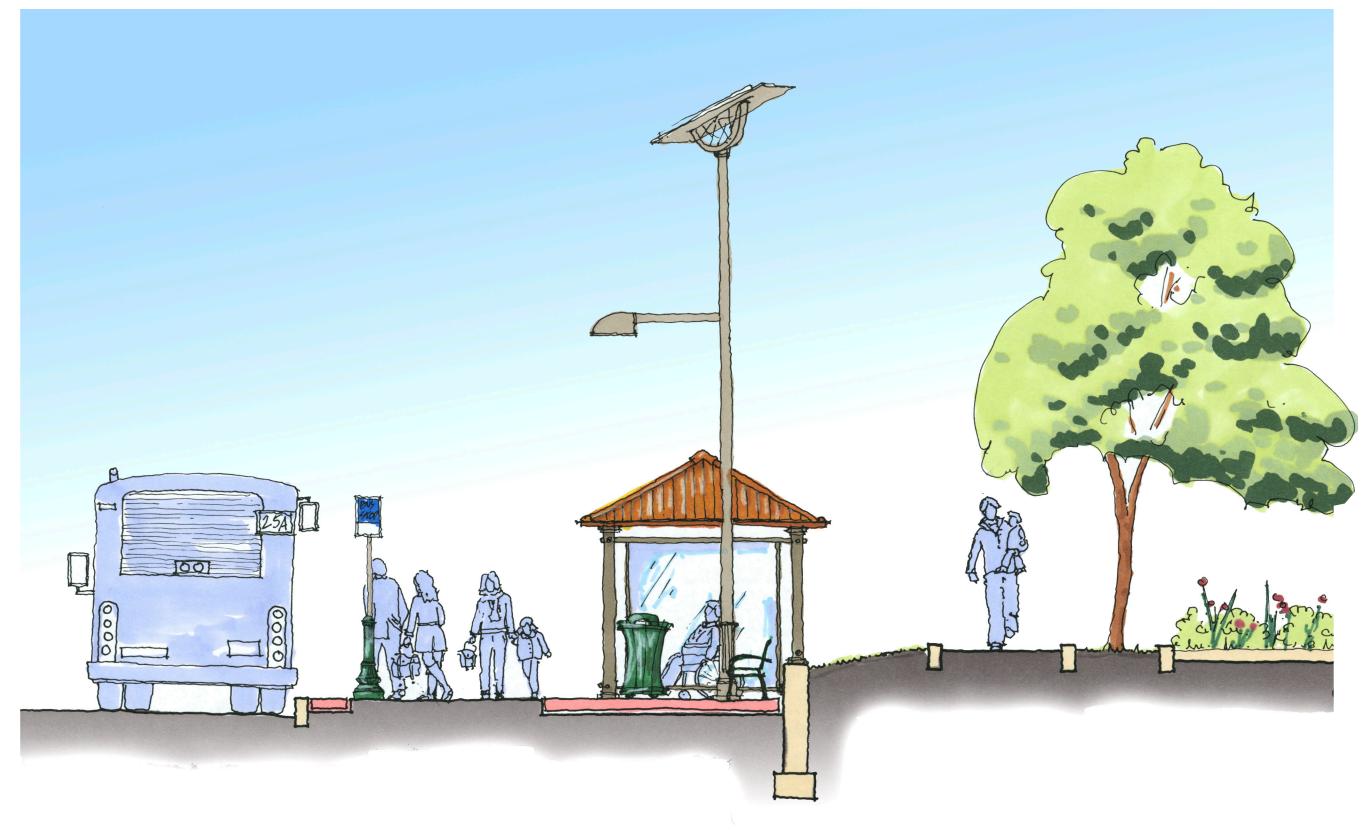
Existing Busy Roadway Bus Stop















8.3 Busy Roadway Bus Stop Recommendations

Initially, it appeared that the generous right of way of 120 feet, which provided approximately 30 feet of clear curbside area outside of the travel lanes of University Boulevard, would easily accommodate larger bus shelters set comfortably back from the street edge; however, the placement of the bus stop shelters was restricted by sloping grades and the need to maintain ADA-compliant paths.

Each of the four corners of the intersection was evaluated for potential bus stop placement. Rather than imposing a "near side/far side rule of thumb," preferred sites were selected based upon accessibility, topography, and available clear area. Consequently, the proposed Busy Roadway Bus Stop Prototype illustrates both a near side and a far side bus stop, located within the public right of way of a PennDOT-owned roadway. Proposed improvements include:

- Provide contiguous 5-foot sidewalks with ADA compliant curb cuts.
- Locate each bus stop close to the intersection to discourage mid-block crossings by pedestrians and cut-ins by motorists.
- Locate each bus stop away from un-signalized driveways.
- Locate each bus stop on level sites and/or provide retaining walls to create a level site.
- Locate each bus shelter 10 feet from the curb line.
- Maintain PennDOT mandated clear zones (10 feet for a 35 MPH zone) and view triangles.
- Identify the bus-boarding area with a bus stop sign and a 60" by 96" accessible pad.
- Provide a 30" warning strip between the curb and the bus pad in a contrasting color and texture (such as decorative brick or rustic terrazzo).
- Provide decorative breakaway bollards or crushable planters at a 5-foot minimum spacing between the accent strip and sidewalk. Maintain ADA compliant clearances and adjust spacing so that bus doors are not obstructed.
- Provide a 6-foot by 10-foot shelter with clear wind screening panels to maximize visibility in and out of the shelter.
- Provide a shelter with an opaque roof for sun shading.
- Provide solar-powered Light Emitting Diode (LED) shelter lighting.
- Provide solar-powered LED general area lighting, where lacking, to eliminate the "fish bowl" effect.
 General area lighting is to incorporate appropriate cut-off angles to avoid spillover light pollution.

- Post route maps and timetables at the rear of the shelters or on freestanding information kiosks located beyond the departing side of a shelter to minimize view obstructions.
- Accommodate information technology systems such as Automatic Vehicle Location (AVL) and announcement systems or "Route Shout" cellular phone service(s).
- Consider locating advertising panels on freestanding information kiosks located beyond the departing side of a shelter.
- Provide a 3-foot minimum bench inside and outside of the shelter. An accessible clear floor area of 30" by 48" is to be located immediately next to each bench to accommodate those in wheelchairs and their companions. Longer benches may be subdivided with armrests to discourage sleeping.
- Provide a trash receptacle adjacent to the shelter so that it is easily reachable. Do not obstruct accessible paths.
- Provide bicycle racks. Do not obstruct accessible paths.
- Provide landscaping utilizing low shrubs that do not provide hiding places. Deciduous trees may provide additional shading but should not obstruct any views.

The design team recommends that low volume bus stops be upgraded in a manner similar to the "Busy Roadway Prototype Bus Stop." For those who utilize public transit in all types of weather conditions and at all times of day, particularly at rush hour, bus stops should be sited along an accessible path, furnished with shelters set comfortably back from the curb line, and equipped with comfortable weather-resistant amenities.

8.4 Pedestrian and Cyclist Access to Bus Stops

Numerous stops along busy roadways in the project area are unprotected due to a lack of traffic controls. Therefore, it is the recommendation of the design team that crosswalks and pedestrian crossing signage be provided at all suburban bus stops to alert motorists to the presence of those on foot. At signalized intersections, pedestrian walk signals should also be installed. At heavily traveled streets, flashing pedestrian protective signage and raised rolled-edge crosswalks would

serve as traffic calming measures at mid-block crossings that enhancing pedestrian safety.

Additionally, less traveled roadways within the project area would benefit from the installation of designated pathways for pedestrians and cyclists. Crosswalks, curb cuts, and sidewalks should be consistently provided as a component of the suburban landscape. Suburban office parks, for example, are rarely fitted-out with paved pedestrian pathways or bike lanes, even though it is common for area employees to spend their lunch hours running or walking along the streets for exercise. Others opt to commute by bicycle. Where roadway right of ways allow, bike lanes should be designated.

8.5 Bus Shelter Setbacks

A note of clarification: The Stakeholder Committee debated the setback distance of shelters from the street edge. Bus riders reported, via a Bus Rider Survey, feeling too close to traffic while standing or sitting in a bus shelter that is located 5 feet from the edge of traffic. Consequently, some committee members requested that a setback greater than 10 feet be provided. Third party agreements could allow bus stops to be located on both public and private property, especially in a "wide open" suburban setting; however, the design team recommends that shelters remain relatively close to the street edge for the following two reasons:

An increased distance between the bus stop shelter and the edge of the road is likely to present an additional barrier to bus patrons with mobility impairments.

An increased distance between the bus stop shelter and the edge of the road presents greater exposure to the elements during inclement weather, especially during bus boarding cueing.

Therefore, the design team suggests a bus shelter setback greater than the typical existing 5 feet from curb line, but a distance limited to 10 feet for ease of mobility. The setback condition may warrant a more scientific study specific to suburban conditions.



Information Kiosk / Advertising Panel



Planters & Break-Away Bollards



Seating



9. Prototype II - Suburban Retail Bus Stop

9.1 Existing Conditions at a Suburban Retail Center

The project area, comprising the commercial areas of Robinson Township, North Fayette Township, and Moon Township, is typified by "box store" development. Each freestanding commercial establishment is segregated from other buildings. Site development is characterized by substantial distances between buildings, over-utilized access roads, and in some cases, site elevation differences due to a rolling topography that has been re-shaped as level terraces. As with typical suburban commercial development, buildings are surrounded by parking lots that lack protected walking paths and, consequently, pose a challenge to those on foot.



Close-up Map of Prototype II - Suburban Retail Bus Stop



Map of Prototype II - Suburban Retail Bus Stop



9.2 The Selected Suburban Retail Center: Walmart at North Fayette

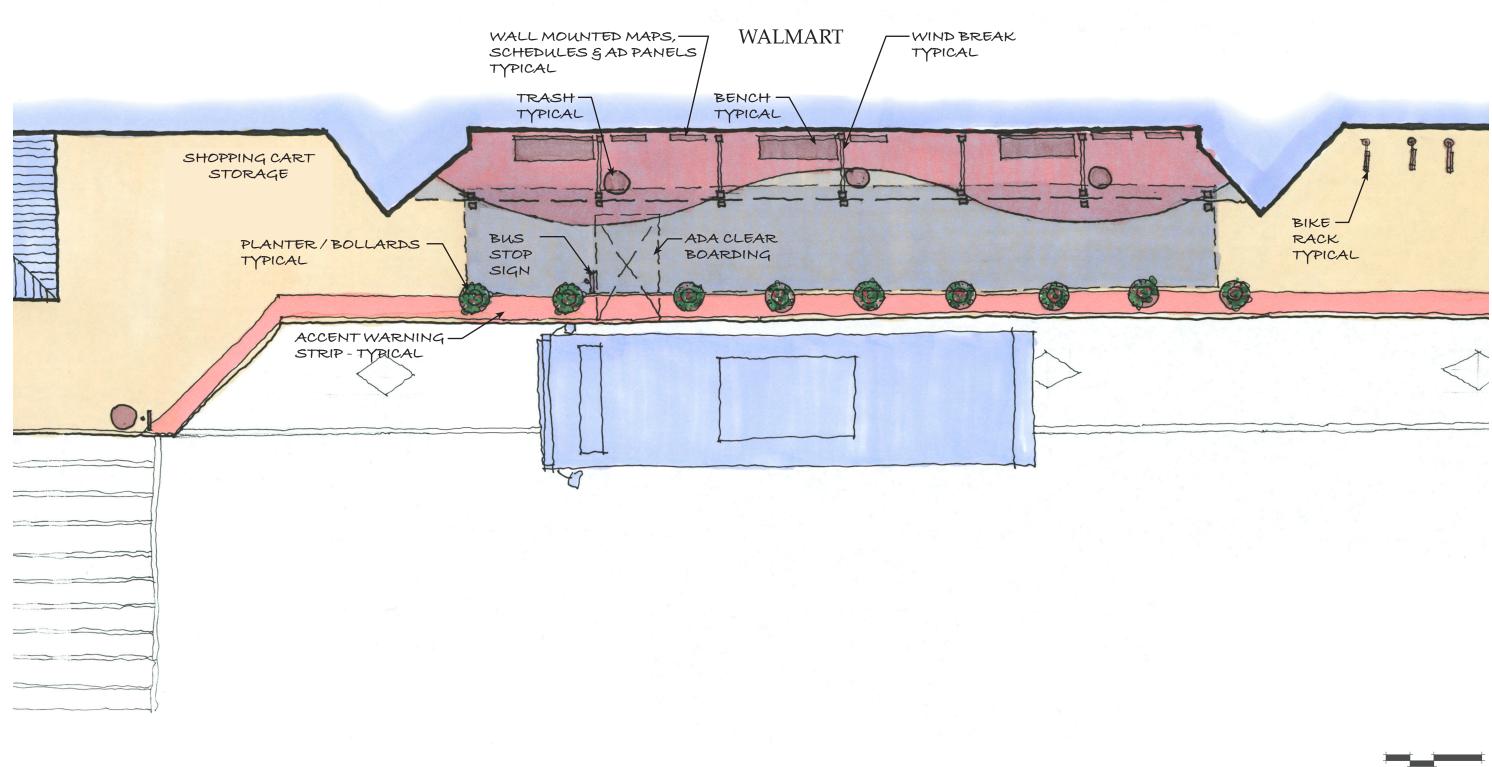
The North Fayette Township Walmart located on Summit Park Drive in was selected as the prototypical location for a suburban retail center bus stop. The existing stop is located at the center of the sidewalk that runs along the edge of a bus bay at the face of the store. The design team applauds Walmart's management for providing an accessible stop located near store entrances to accommodate employees and shoppers who travel utilizing public transit.

The Walmart parking lot creates traffic movements both parallel and perpendicular to the building and the bus stop located along its face. Bus patrons are shielded from traffic by concrete-filled steel tube bollards, which are located along a depressed/flush curb that allows the easy movement of shopping carts and wheelchairs. An existing overhang, 10 feet high and no more than 6 feet deep, provides little protection from the wind or wind-driven rain and snow. Three metal benches and a cigarette urn are grouped tightly together near the bus stop sign. If multiple parties wished to sit down they would be required to gather close together within a smoking zone. Further, the benches are not spread out to allow those on motorized scooters or in wheelchairs to sit adjacent to their companions. The existing painted concrete block walls are plain and unadorned. Wind screening and bus stop lighting are lacking.

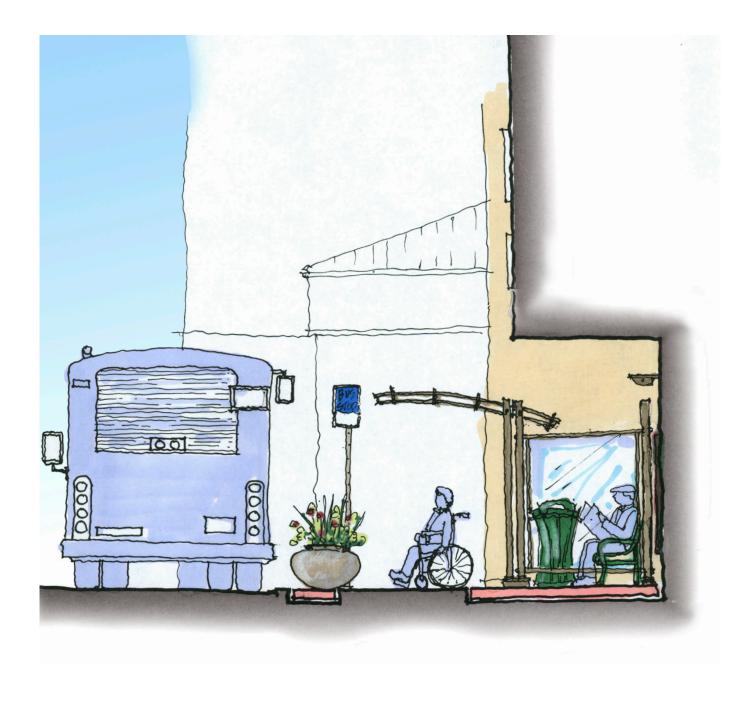


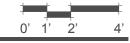
Existing Suburban Retail Bus Stop













9.3 Suburban Retail Bus Stop Recommendations

The proposed Suburban Retail Bus Stop Prototype is located on private property, the grounds of the retail establishment, in order to provide direct, convenient, and safe access to store entrances. Proposed improvements include:

- Provide a minimum 10-foot wide accessible sidewalk/bus stop pad. (Exists.)Locate a bus stop at a central point near the main store entrance(s). (Exists.)
- Identify the bus-boarding area with a bus stop sign and a 60" x 96" accessible pad. For this specific Walmart site, relocate the existing sign and ADA pad to a position that allows easier bus maneuvering to and from the curb.
- Provide a new 30" warning strip between the curb and the bus pad/sidewalk in a contrasting color and texture (such as decorative brick or rustic terrazzo).
- Provide decorative bollards, decorative posts
 with hanging baskets, or planters at a 5-foot
 minimum spacing between the
 accent strip and sidewalk to shield pedestrians
 from perpendicular vehicle movements. Planters
 and hanging baskets provide a display opportunity
 during garden merchandising seasons. Maintain
 ADA compliant height and width clearances and
 adjust spacing so that bus doors are not
 obstructed.
- Provide clear wind screening panels perpendicular to the building façade. Do not obstruct visibility in and out of the bus stop area.
- Provide a continuous, column-supported canopy across the center of the store with an opaque roof to provide sun shading.
- Do not impose new loads on the existing retail structure. Do not obstruct views of existing store branding signage.
- Paint the underside of the existing overhang a light color.
- Provide solar-powered, Light Emitting Diode (LED) up lighting at the underside of the existing overhang and the new canopy.
- Verify that adequate levels of general area lighting exist to eliminate the "fish bowl" effect.
 General area lighting, preferably solarpowered, is to incorporate appropriate cut-off angles to avoid spillover light pollution.
- Post route maps and timetables on the existing face of the building to minimize view obstructions.

- Accommodate information technology systems such as Automatic Vehicle Locations (AVL) and announcement systems or "Route Shout" cellular phone service(s).
- Post store advertising panels on the existing face of the building to minimize view obstructions.
- Provide a series of 3-foot minimum benches within the bus stop area and between wind screening panels. An accessible clear floor area of 30" by 48" is to be located immediately next to each bench to accommodate those in wheelchairs and their companions.

 Longer benches may be subdivided with armrests to discourage sleeping.
- Provide easily reachable trash receptacles within the bus stop area. Do not obstruct accessible paths.
- Provide bicycle racks. Do not obstruct accessible paths.



Lighted Bollards



Decorative Planter



10. Prototype III - The Hub Station

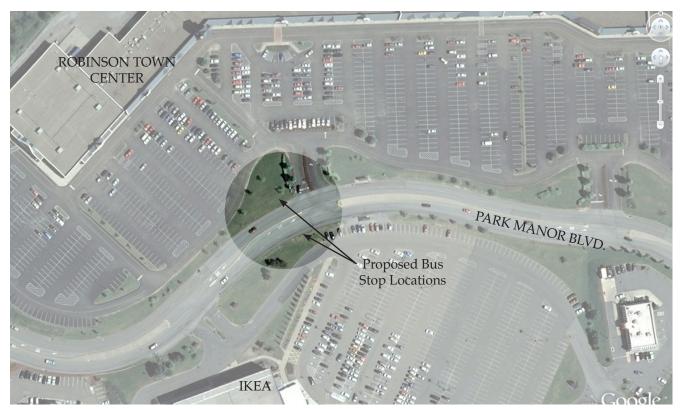
10.1 Existing Conditions at the Hub Station

The Bus stops flanking Park Manor Drive, near IKEA, are the hub of service for Port Authority of Allegheny County, Beaver County Transit Authority, and the local shuttle service provided by the Airport Corridor Transportation Association. The adjacent parking in the IKEA lot serves as a "park and ride." This location, however, lacks safe pedestrian crossings, does not provide shelters or street furnishings scaled to accommodate the volume of riders, and lacks bicycle facilities. The location of the stop, along a curved section of roadway beyond the existing IKEA driveway, occurs in an area where motorists would be inclined to accelerate and, consequently, poses a safety challenge.

The utilization of the existing bus stops at the Hub area, served by at minimum three transit service providers, is significant enough that the existing 2 bus stops warrant being upgraded to bus stations with larger shelters and additional patron amenities.



Existing Hub Station



Map of Prototype III - The Hub Station



Site for the Proposed Hub Station



Site for the Proposed Hub Station

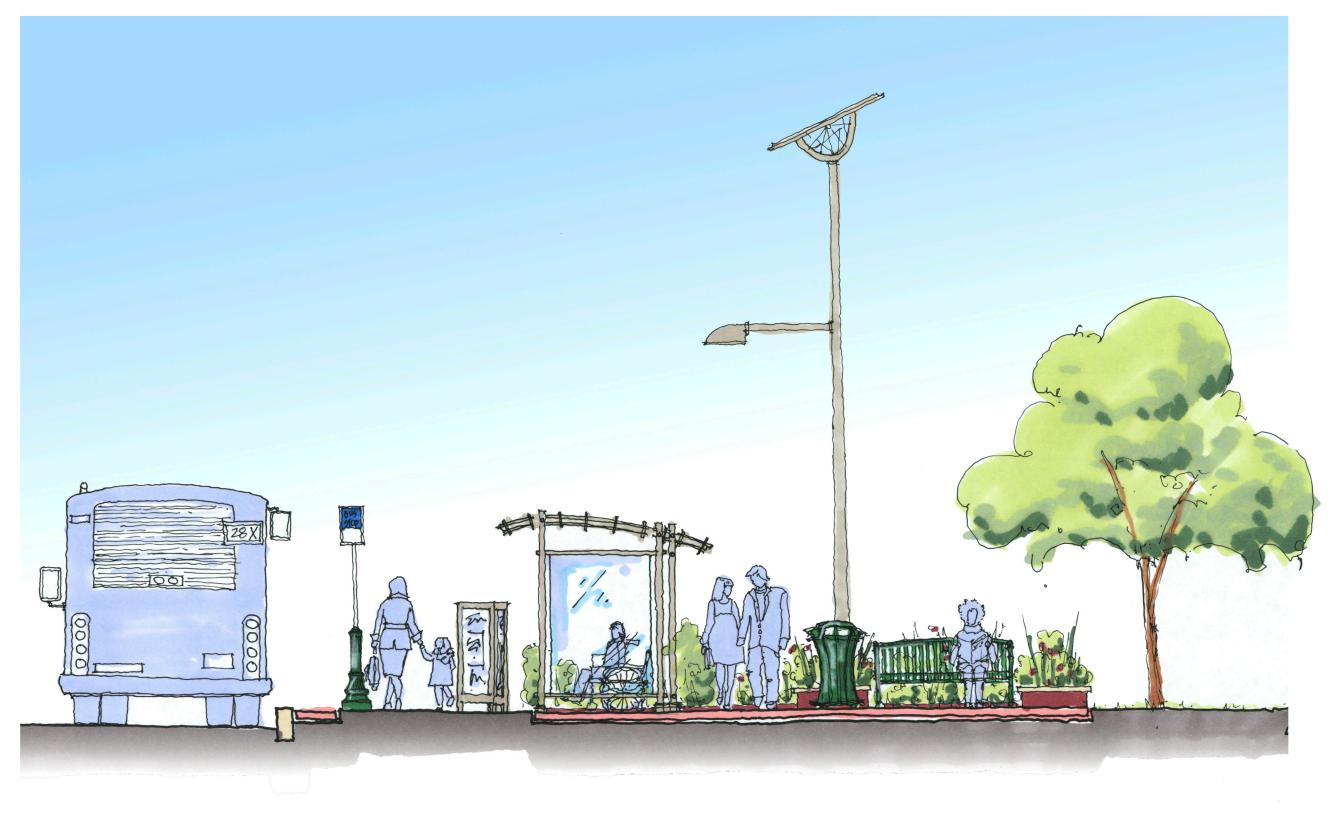
















10.2 Hub Station Recommendations

The proposed Hub Station Prototype is assumed to be located on both public and private property. Right of way information at the Hub site was not made available to the design team; however, suburban shoulder rights of way are often limited to 10 feet.

The proposed Hub Station Prototype advances the recommendation of a previous study, *ACTA's Commercial Center Mobility Study* and advocates the relocation of the IKEA driveway entrance to a signalized intersection opposite the entrance to Robinson Town Centre. Proposed improvements include:

- Provide contiguous 5-foot sidewalks with curb cuts.
- Locate each bus station close to the intersection at the proposed relocated IKEA driveway entrance.
- Locate each bus station on a level site or provide retaining walls.
- Locate each bus shelter 10 feet from the curb line.
- Maintain PennDOT mandated clear zones and view triangles, where applicable.
- Identify the bus-boarding area with a bus stop sign and a 60" x 96" accessible pad.
- Provide a 30" warning strip between the curb and the bus pad in a contrasting color and texture (such as decorative brick or rustic terrazzo).
- Provide decorative bollards or planters at a 5-foot minimum spacing between the accent strip and sidewalk.
- Maintain ADA compliant clearances and adjust spacing so that bus doors are not obstructed.
- Provide a 6-foot by 10-foot shelter with clear wind screening panels to maximize visibility in and out of the shelter.
- Provide a shelter with an opaque roof for sun shading.
- Provide solar-powered, light emitting diode (LED) shelter lighting.
- Provide solar-powered, LED general area lighting, where lacking, to eliminate the "fish bowl" effect.
- General area lighting is to incorporate appropriate cut-off angles to avoid spillover light pollution.
- Post route maps and timetables at the rear of the shelters or on freestanding information kiosks located beyond the departing side of a shelter to minimize view obstructions.
- Accommodate information technology systems such as Automatic Vehicle Location (AVL) and announcement systems or "Route Shout" cellular phone service(s).

- Consider locating advertising panels on freestanding information kiosks located beyond the departing side of a shelter.
- Provide bus-hailing systems such as the "I-Stop."
- Provide a 3-foot minimum bench inside and outside of the shelter. An accessible clear floor area of 30" by 48" is to be located immediately next to each bench to accommodate those in wheelchairs and their companions. Longer benches may be subdivided with armrests to discourage sleeping.
- Provide a trash receptacle adjacent to the shelter so that it is easily reachable. Do not obstruct accessible paths.
- Provide bicycle racks. Do not obstruct accessible paths.
- Provide landscaping utilizing low shrubs that do not provide hiding places. Deciduous trees may provide additional shading but should not obstruct any views.
- Provide parklets or plazas that expand the bus station area. Include trash receptacles and benches or café-style tables and chairs. Provide incentives to near-by businesses to maintain and equip plazas with outdoor furnishings and services. Encourage the use of these spaces as social gathering spots and not just transit stations. Active use of public spaces discourages crime.
- Specialized themes can be developed, however, designs should be kept simple, clear, and maneuverable for those with physical or cognitive impairments.



Parklet with Cafe Tables

Finally, the design team recommends the relocation of existing stops. New near-side and far-side stations located opposite each other at the proposed reconfigured intersection accommodate a direct path between major retail centers and provide better site lines up and down Park Manor Boulevard.



Cafe Tables



11. Prototype IV - Intermodal Transfer Center

11.1 Existing Conditions at an Intermodal Transfer Center

The typical Western Pennsylvania suburban Intermodal Transfer Center (ITC) is comprised of a bus stop and a "park and ride" lot, which accommodates the cars of suburban residents who complete their commute utilizing public transit. Transfer stations are currently sited throughout the region to facilitate a more efficient network of service. In urbanized corridors, transfer stations often incorporate access to light rail vehicle service. Typically, bus stops located at "park and ride" lots are furnished with several shelters, benches, trash receptacles, and bike racks. These sites are often secluded from the types of commercial and social services that may be beneficial to commuters such as newsstands, coffee shops, day care services, and dry cleaners.

The Port Authority of Allegheny County (PAAC), the largest transit provider in the project area, owns a parcel of land along Montour Church Road in North Fayette Township, which it plans to develop as a future Intermodal Transfer Center. As described in Section 4 of this report, PAAC is undergoing

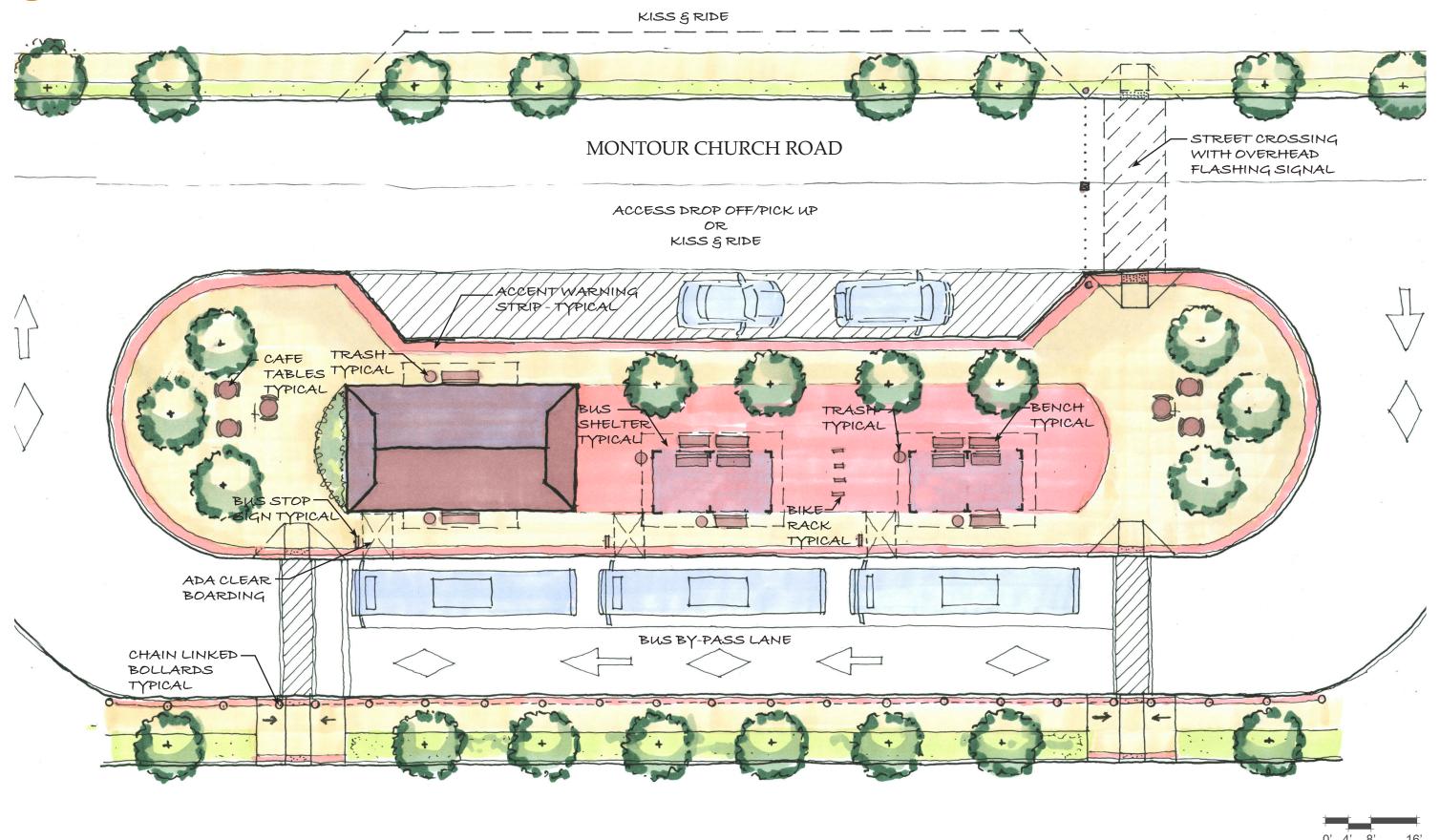
an assessment of service and is exploring greater use of Bus Rapid Transit (BRT) between downtown Pittsburgh and suburban transfer centers. The transfer centers would, in turn, be served by local shuttle service furnished by Port Authority or others.

The planned Intermodal Transfer Center (ITC) in North Fayette Township is bounded on three sides by steep grades. Access to the site will occur along an extended Montour Church Road approached from the south along Route 22/30/Steubenville Pike or from the north along Summit Park Drive. The site is likely to be served by various transit providers including Port Authority of Allegheny County, Beaver County Transit Authority, and the Airport Corridor Transit Association's shuttle service. As such, the volume of usage at the proposed ITC will be significant enough to be classified as a bus station with larger shelters and additional patron amenities.

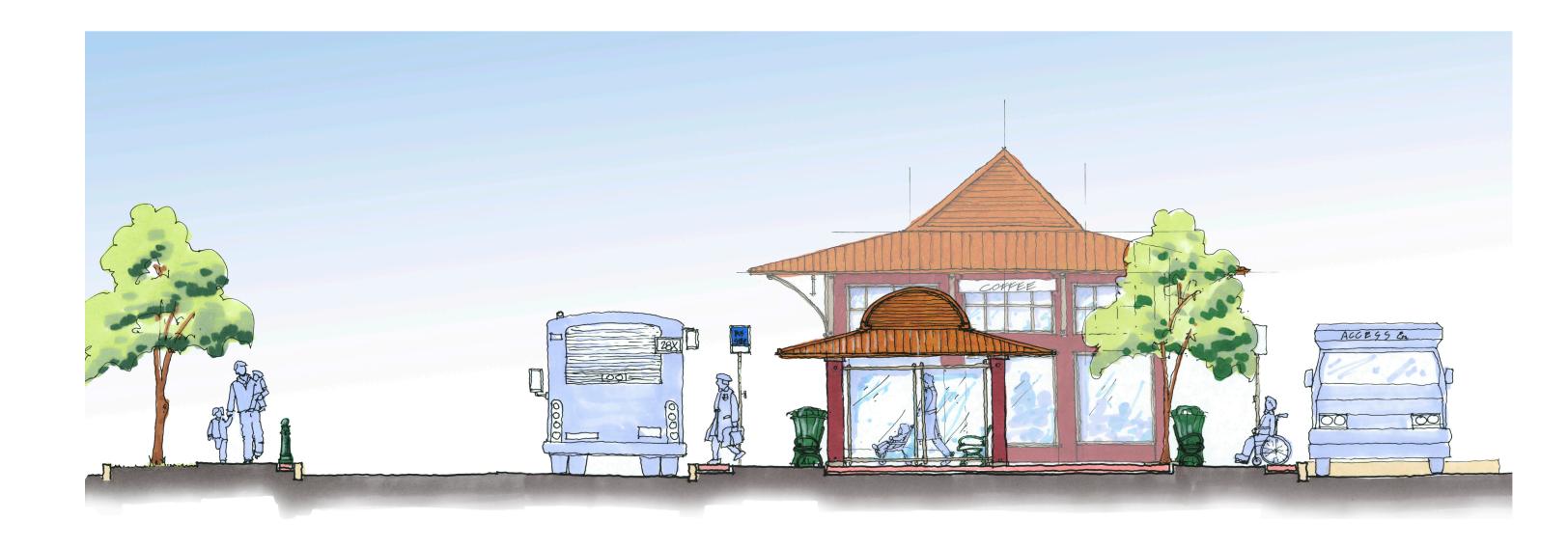


Map of Prototype IV - Intermodal Transfer Station











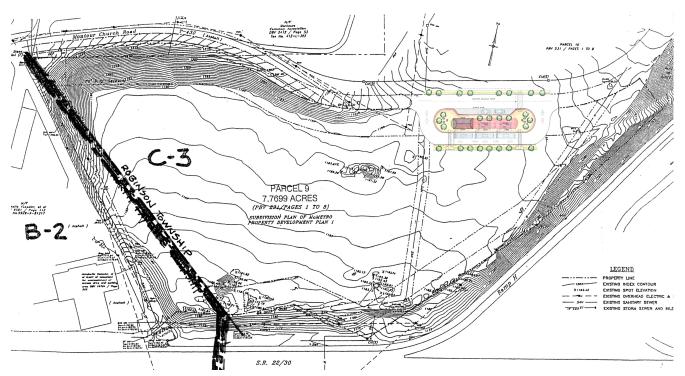


11.2 Intermodal Transfer Center Recommendations

The design team recognizes that efficient bus operations must be maintained, not only for fiscal considerations, but also for rider convenience. Bus patrons become impatient and ridership can decline when buses must spend too much time traveling between stops or maneuvering within a bus station site. Therefore, the design team recommends that the bus stop/station components of an Intermodal Transfer Center be located along the main access road with direct access in and out of the site. Consequently, portions of the Prototypical Intermodal Transfer Center may occur within a public right of way. Proposed improvements include:

- Provide contiguous 5-foot sidewalks with curb cuts along the access road and within the "park and ride" parking lot.
- Locate each bus stop close to the access road.
- Provide a bus berthing lane and a bus by-pass lane at stops located within the ITC site.
- Provide a "kiss and ride" pullover lane.
- Provide an "on-demand" transit service pullover lane.
- Locate each bus stop on a level portion of the site or provide retaining walls.
- Locate each bus shelter 10 feet from the curb line.

- Maintain PennDOT and mandated clear zones and view triangles, where applicable.
- Identify the bus-boarding area with a bus stop sign and a 60" x 96" accessible pad.
- Provide a 30" warning strip between the curb and the bus pad/station area in a contrasting color and texture (such as decorative brick or rustic terrazzo).
- Provide decorative bollards or planters at 5-foot minimum spacing along curb lines where there are perpendicular traffic movements. When bollards or pedestrian protective features are provided at the bus boarding area, maintain ADA compliant clearances and adjust spacing so that bus doors are not obstructed.
- Provide a 10-foot by 20-foot shelter at each bus boarding position with clear wind screening panels to maximize visibility in and out of the shelter. Alternatively, provide continuous canopies with clear wind screening along the length of several bus docking positions.



Plot Plan with Proposed Intermodal Transfer Center



- Provide a shelter with an opaque roof for sun shading.
- Provide solar-powered, light emitting diode (LED) shelter lighting.
- Provide decorative, pedestrian-scaled, solar-powered, LED general area lighting, where lacking, to eliminate the "fish bowl" effect. General area lighting is to incorporate appropriate cut-off angles to avoid spillover light pollution.
- Post route maps and timetables at the rear of the shelters or on freestanding information kiosks located beyond the departing side of a shelter to minimize view obstructions.
- Accommodate information technology systems such as Automatic Vehicle Location (AVL) and announcement systems or "Route Shout" cellular phone service(s).
- Consider locating advertising panels, if required, on freestanding information kiosks located beyond the departing side of a shelter.
- Provide several 3-foot minimum benches inside and outside of each shelter. An accessible clear floor area of 30" by 48" is to be located immediately next to each bench to accommodate those in wheelchairs and their companions. Longer benches may be subdivided with armrests to discourage sleeping.
- Provide a trash receptacle adjacent to each shelter so that it is easily reachable. Do not obstruct accessible paths.
- Provide bicycle racks. Do not obstruct accessible paths.
- Provide landscaping utilizing low shrubs that do not provide hiding places. Deciduous trees may provide additional shading but should not obstruct any views.
- Identify opportunities to incorporate Transit-Oriented Development (TOD), such as a coffee shop or newsstand within the Intermodal Transfer Center. Similarly, identify and develop ITC sites located within walking distance of employment centers and services that compliment transit facilities such as cafes, bookshops, day care centers, and dry cleaners.
- Provide an indoor, heated, bus patron waiting area that houses TOD retail.
- Provide landscaped plazas within the bus station area. Include trash receptacles and benches or café-style tables and chairs. Keep the design simple, clear, and maneuverable for those with physical or cognitive impairments.



Chain Linked Bollards



Coffee Shop / Newsstand



12. Future Challenges and Next Steps

12.1 Lack of Foresight and Investment

Economically successful suburban development often leads to additional adjacent suburban development. Too often the infrastructure, the roads and utilities, for each development is built on a case-by-case basis without an overriding land use and road network plan. Suburban sprawl results. The infrastructure that once comfortably accommodated the initial development quickly becomes over-utilized. Roads become congested since they are not created as a traditional grid network that offers relief valves. Customers are expected to trek from site to site in their car, although they may plan to visit establishments immediately adjacent to each other. Sidewalks and safe walking paths are rarely provided across parking lots and between commercial establishments. There is a pervasive lack of recognition on the part of developers, property-owners, tenants, and municipal planning and zoning enforcement bodies that many of the employees, patrons, and visitors of suburban commercial centers will be traveling via public transit. Further, accommodation of people with disabilities is either lacking or inconsistently executed.

Alternatively, municipalities have the choice of optimizing site densities based upon pedestrian-scaled development to limit sprawl and improve pedestrian safety. They have the option of upgrading their planning and zoning ordinances to required investment in pedestrian and transit amenities. The marginal increase in first costs of providing traffic controls, curb cuts and sidewalks, landscaping, lighting, site furnishings and comfortable bus stops results in a safer, more comfortable and attractive environment that will be more appealing to the targeted market of users. It is best if communities are proactive in their planning activities, however, reactive retrofit measures can be implemented.

12.2 Bus Stop Capacity and Location

Just as the capacity of streets and utilities are often unplanned and undersized for the volume of suburban development that occurs over time, the capacity of bus stops and bus stop amenities are not planned to reflect future loads. A small bus stop may become a very popular place as retail booms around it. If land has not been reserved for access to the bus stop and for the bus stop shelter and surrounding amenities, bus riders may find themselves standing in muddy paths, in snow drifts, in parking lots, on or in the path of a moving vehicle.

Too often bus service is located at the periphery of retail parking lots and on public streets requiring bus patrons to navigate a sea of parking or stand within a roadway. Large, heavy buses can cause wear and tear on paved surfaces and obstruct building entrances. Such design issues, however, can be addressed by modifying the types of materials installed and the arrangement of space.

It is easier to make physical changes in our communities than to overcome socio-economic challenges. Some citizens feel that the image of a retail center is tainted by the presence of transit facilities and transit users, while others greatly value the service. It is ironic that the individuals, who staff and patronize commercial establishments, are not always welcomed by the landlords and business owners who prosper by their presence. Such biases require a larger societal response.

The design team suggests that further studies be undertaken to document the financial benefits to be gained by suburban retail centers, box stores, and malls when bus stops are safely and conveniently sited. Factors to be considered include an aging baby boom population, the recognition of the rights of those with disabilities, ever-increasing energy/gas prices, and the liability of property owners and tenants for the safety of employees and shoppers alike.

12.3 To Whom Does the Travel Path Belong?

The Pennsylvania Department of Transportation (PennDOT) is dedicated to roadway safety. PennDOT publishes extensive prerequisites for the design of roadways and highways. As described earlier in this report, PennDOT has also defined smart transportation principles that include planning for pedestrians and transit.

The Stakeholder Committee observed that regulations enhancing motorist safety could diminish the safety of pedestrians. Specifically, at the March 13, 2009 Stakeholder Committee meeting, the design team recommended that decorative bollards or planters be placed along curb lines at bus stops where pedestrians gather and wait. Continuous guardrails and traffic barriers were not recommended since they would create an obstruction between the street and the bus stop. PennDOT representatives noted that a clear zone must be maintained along roadways. Clear zones are to be free of vertical obstructions that would act as hazards to automobiles veering from the driving lane. The depth of the clear zone varies depending upon posted speed limits. This precaution is a thoughtful protection of motorists in distress. However, pedestrians walking or waiting at the side of the



road remain vulnerable in these clear zones. Breakaway bollards and crushable planters were discussed, but the level of protection they afford pedestrians may be inadequate.

This conflict raises the very important question of, "To whom does the travel path belong?" It can be argued that, in a public right of way where multiple modes of mobility occur, the travel path belongs to all. Consequently, protective measures that balance pedestrian and motorist safety should be further studied and defined.

12.4 Setbacks and Third Party Agreements

The setback distance of a bus shelter from the edge of road was debated by the Stakeholder Committee and is discussed in Section 6. Third party agreements, although potentially encumbered, can be carried out to accommodate the placement of bus stops on both public and private property in a wide-open suburban setting. The design team, however, recommends that shelters remain relatively close to the street edge for the following two reasons:

- An increased distance between the bus stop shelter and the edge of the road is likely to present an additional barrier to bus patrons with mobility impairments.
- An increased distance between the bus stop shelter and the edge of the road presents greater exposure to the elements during inclement weather, especially when cueing to board the bus.

Numerous guidelines reviewed for this study illustrated the relationship between a bus stop and the curb line. They may or may not have assumed restrictive rights of way. Typically, the guidelines repeated the minimum standards required by the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Since the ADAAG defines minimum standards and not optimal standards, the design team suggests that bus shelter setbacks specific to suburban conditions warrant a more scientific study.

12.5 Emergency Assistance

Port Authority of Allegheny County (PAAC) provides emergency call buttons along its fixed guideways, which are roadways owned or leased by PAAC dedicated solely to bus rapid transit or light rail service. The Stakeholder Committee raised the question of, "Who provides emergency response service for pedestrians and bus patrons at bus stops located in the public right of way or on private property?" It was generally recognized that the local municipality is responsible

for furnishing emergency response services. Consequently, methods of providing paging systems that tie into existing emergency response systems should receive further study.

12.6 Cold Weather Bus Stops

Staying warm in cold and wet weather climates is a challenge where open shelters or no shelters are provided. The design team noted that heating systems that attempt to raise the temperature of the air would be inefficient and less effective than radiant heating systems. Strategies for heating shelters should be explored as a separate study. Paving, seating, or leaning poles that incorporate radiant heating could be explored. The cost of energy consumption might be addressed by systems requiring patrons to pay for usage.

12.7 The Next Steps to Improved Safety and Security at Suburban Bus Stops

This report summarizes the process undertaken during ACTA's Safety and Security at Suburban Bus Stops project. Data collection activities included: reviewing previous studies and bus stop inventory, obtaining input from Stakeholders and bus users, conducting a literature search, and examining existing area conditions during a walking tour and numerous site visits. Working together, the design team and the Stakeholder Committee identified bus stop characteristics and amenities that would serve as the performance criteria for the four proposed Bus Stop Prototypes:

- A Bus Stop at a Hub Location (See Section 8)
- A Stop at a Suburban Retail Center (See Section 9)
- A Stop Along a Busy Roadway (See Section 10)
- A Stop at an Intermodal Transfer Center (See Section 11)

The Stakeholder Committee also provided feedback on the illustrated Prototypes. Further, an estimate of probable construction cost, based upon material and labor costs at the time of the study, has been developed for each Prototype.

The next step is to build the Prototypes to test their effectiveness. A final design of each specific site is required in order to develop the construction documents that will detail the specific placements, alignments, dimensions, sizes, proportions, materials, furnishings, utilities and technologies to be provided as improvements to each bus stop. The Prototypes can be executed as test cases to assess both statistical improvements from crime and accident reports and perceptual improvements. As described in Section 3 of this report, it is important to inspire user confidence. Perceived



safety is as significant as actual crime or accident statistics because many occurrences go unreported and the perception of threats will discourage use of transit.

It is a fact that multiple modes of mobility occur in the suburbs, whether they are anticipated or not. People do not travel solely by car. Suburban developments that are built without consideration being given to pedestrians, cyclists, and transit users can be retrofitted, as a reactive measure, to improve the safety of street crossings, curb-sides, and bus stops. Wherever possible, however, the proactive planning of safe, functional, attractive environments should be carried out. Therefore, it is critically important to develop and enact the governing ordinances and regulations that define the standards that will shape our communities and that are to be enforced. The design team recommends that each township employ the services of a professional consultant to develop and integrate the specific language appropriate for inclusion within each respective ordinance.

12.8 Acknowledgements

The design team wishes to thank PennDOT for funding ACTA's Safety and Security at Suburban Bus Stops project and each Stakeholder whose valuable perspective was an important contribution to this study.



Appendix A

Steering Committee Members



Safety & Security at Suburban Bus Stops Steering Committee

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Appendix B

Steering Committee Meeting Minutes



AIRPORT CORRIDOR TRANSPORTATION ASSOCIATION

Safety & Security at Suburban Bus Stops Notes from the Conference Call May 6, 2008

On the Call

ACTA: Lynn Manion, Amy Mathieson and Chris Miller

PennDOT: Toby Fauver, Lisa Karavage and Jackie Koons-Felion

I. INTRODUCTIONS

Each person introduced him/her self.

II. REVIEW NOTICE TO PROCEED LETTER

Project Start Date – March 5, 2008

L. Manion requested that the start date be changed to May 5th because ACTA has not started the project yet. She has been waiting for the kick-off meeting to proceed. PennDOT staff requested that ACTA begin the project immediately and then re-evaluate the need for a 2-month contract extension in a few months. A contract extension would have to get underway by December, 2008 if one is needed.

Project End date – March 5, 2009

See discussion above.

Project Amount \$85,067

All agreed on the project amount.

III. RESEARCH CONTRACTURAL DETAILS

Project Communications

PennDOT requested monthly conference call meetings to keep everyone aware of progress with the project. L. Manion gave some dates that are good for ACTA. L. Karavage will get back to ACTA with dates. ACTA is to prepare an agenda and minutes for the monthly conference call.

Monthly Invoice Submissions

Copies of monthly invoices are to be sent to L. Karavage and Mike Baker. Upon reviewing the invoice, L. Karavage will give approval to Mike Baker. The invoice will then be processed for payment.

Monthly Progress Reports

Monthly progress narratives are to be submitted with the monthly invoices.

Submission of Deliverables

Deliverables are to be submitted to T. Fauver and L. Karavage.

IV. REVIEW OF PROJECT SCOPE AND TASKS

Task 1: Literature Search

Since the original due date for this task was May 5th, L. Manion requested and received permission to move the due date to July 7th.

Task 2: Coordination with Municipalities and Transit Groups

L. Manion stated that ACTA will form an Oversight Committee for the study. Oversight members will be invited from the Port Authority, Beaver County Transit, SPC, Lamar Advertising, municipal and Port Authority police, Allegheny County Economic Development Department and the Office for Accessible Transit.

Meeting Minutes will be developed and sent to PennDOT.

Survey Results (from a survey of transit riders) will also be collected and sent to PennDOT.

Task 3: Planning and Design Work

ACTA stated that the planning and design work would be the bulk of the contract. ACTA will develop an RFP which will probably be targeted to a landscape architect. T. Fauver agreed that the work would probably best be directed to the expertise of a landscape architect and perhaps a planner. T. Fauver asked the consultant be given clear direction that low-cost and easily implementable solutions be targeted in the study.

A copy of the **Final Technical Report** will be delivered to PennDOT.

Task 4: Publication

ACTA will develop a **brochure** that outlines the problem and solutions.

Task 5: Public Presentations

L. Manion is planning to present the study results at the PA Public Transportation Association Annual Meeting, an APTA meeting, and an Association for Commuter Transportation Annual Meeting.



Safety & Security at Suburban Bus Stops Notes from the Conference Call June 27, 2008

On the Call

ACTA STAFF: Lynn Manion and Chris Miller

ACTA BOARD: Bob Dudash

PennDOT: Toby Fauver and Lisa Karavage

I. INTRODUCTIONS

Each person introduced him/her self.

II. PROGRESS TO DATE BY TASK

Task 1: Literature Search

- L. Manion presented a bibliography based on research done by ACTA staff and input from the Stakeholders Committee. She is waiting for the consultant to come on board to add design-related research to the information collected to date.
- L. Karavage requested that L. Manion e-mail a request to her (copy Toby and Jackie) to extend the deadline for the literature search from July 7th to August 31st. B. Dudash said that, in his opinion, the bibliography provided by ACTA at today's meeting represents the latest research in this area.
- L. Manion distributed a sample checklist that ACTA has developed (modified from the checklist presented in the Easter Seals Toolkit) that they have been using to survey and document bus stops in the study area.

Task 2: Coordination with Municipalities and Transit Groups

- L. Manion stated that the Stakeholders Committee has representatives from North Fayette, Moon and Robinson Townships as well as from the port Authority of Allegheny County and Beaver County Transit Authority. All representatives attended the first Stakeholder Meeting earlier this month.
- T. Fauver suggested that L. Manion send a letter to Dan Cessna, District 11-0 District Administrator, asking describing the study and requesting that

(at T. Fauver's suggestion) a District 11 representative attend the Stakeholder Committee meetings.

Task 3: Planning and Design Work

ACTA is using the services of Karen Brean and Associates for planning consulting. Karen is helping with the RFP and facilitating some Stakeholder Committee functions.

The RFP and RFP List for the design consultant was approved by the Stakeholders Committee at their June 10th meeting. A copy of the meeting minutes was sent to the Steering Committee. Copies of the RFP and RFP List were also distributed.

The schedule for the RFP process is:

RFP Sent	June 18 th
Scoping Meeting	June 30 th
Proposals Due to ACTA	July 14 th
RFP Selection Committee Meeting	July 15 th
Consultant Interviews	July 22 nd
Consultant Selection Announced	July 25 th
Notice to Proceed	July 28 th

Task 4: Publication

No progress to date.

Task 5: Public Presentations

No progress to date.

III. CONTRACTURAL ISSUES

Local Match Requirement

L. Manion spoke to Laverne Collins about the match requirement. Laverne asked that L. Manion submit proposed match to her with a copy to J. Koons-Felion. L. Manion will follow up.

Monthly Invoices

To date, ACTA has not begun to invoice.

Monthly Progress Reports

ACTA will submit progress narratives with invoices.

Deliverables Submitted to Date

IV. CONTRACT TIMELINE

L. Manion stated that, because work on the contract started after the May 6th kickoff meeting (more than two months after the Notice to Proceed) she may need to ask to extend the contract by two months.

L. Karavage suggested that ACTA may want to request changes to the projected due dates within the contract once the consultant is hired and a more secure timeframe for the design work has been agreed upon.

V. OPEN DISCUSSION AND WRAP-UP

Because of schedule conflicts, vacations, etc., we will not meet in July or August unless there is a particular need. L. Manion will keep the Steering Committee updated as needed by e-mail. It was suggested that the September meeting might include a field visit since T. Fauver will be in Pittsburgh at SPC for a joint TTC/TOC meeting. L. Manion will follow-up to schedule when SPC determines their meeting date.



AIRPORT CORRIDOR TRANSPORTATION ASSOCIATION

Safety & Security at Suburban Bus Stops Notes from the Conference Call January 16, 2009

On the Call

ACTA STAFF: Lynn Manion, Amy Mathieson and Chris Miller

PennDOT: Jackie Koons Felion and Lisa Karavage

I. INTRODUCTIONS

Each person introduced herself.

II. PROGRESS TO DATE BY TASK

Task 1: Literature Search

This task has been completed. The deliverable (written report) was submitted to PennDOT in August, 2008.

Task 2: Coordination with Municipalities and Transit Groups

This task is on-going. Stakeholder Committee meetings were held on June 10th, September 25th and December 4th. Minutes from all meetings have been submitted to PennDOT. We expect to have another Stakeholder Meeting in late February or March. Other accomplishments under this task include a Bus Rider Survey. Approximately 120 surveys were distributed at the IKEA bus stop by ACTA staff. One-third responded. A Power Point presentation of the responses was sent to PennDOT. Thirty-eight bus stops in the study area were surveyed and photographed (based on the Easter Seal model) by ACTA staff. The surveys were submitted to PennDOT. In September, the Stakeholder Committee took a walking tour of parts of the study area. Finally, the consultant has reviewed zoning ordinances from the three townships in the study area. On November 7th, focus groups were conducted with township managers as well as other members of the Stakeholder Committee (October 29th).

Task 3: Planning and Design Work

The consultant is completed the existing conditions part of the research. Four prototype suburban bus stops have been selected for further study: hub stop, stop along a busy roadway, stop in a retail area, and stop in an office park. At the next Stakeholder Meeting the draft prototypes will be

presented. On December 15th, ACTA submitted an application for funding under PennDOT's Smart Transportation funding program. The hub stop was included as part of the application.

Task 4: Publication

The Steering Committee discussed this task. Lynn Manion stated that this task could not begin until the consultant's technical report has been completed. It is scheduled to be submitted by May 20th.

Task 5: Public Presentations

The Steering Committee discussed this task and the new deadline for deliverables. Since the task cannot be adequately completed without the technical report and because ACTA must wait for the proper venues to present the results (PPTA Annual Meeting, ACT conference, etc.) it as agreed that ACTA would attempt to meet the contract deadline of June 20th by presenting the study results at local venues such as SPC's TOC Committee, the ACTA Quarterly Meeting and possibly another local venue such as the Local Government Academy. Lynn Manion will e-mail Toby Fauver about the change.

III. CONTRACTURAL ISSUES

Monthly Invoices & Progress Reports

No issues here. ACTA submits invoices monthly and payments are received in a timely manner.

Contract Extension

ACTA has been working with Jackie on a contract extension. Jackie gave the contract extension number: 520674J. The new contract completion date is June 20th.

Revised Schedule of Deliverables

Lynn Manion will forward the revised date of contract deliverables to Lisa, Jackie and Toby following the meeting. They are:

- Technical report due May 20, 2009
- Final Publication (brochure) due June 20, 2009
- Three public presentations due June 20, 2009

IV. OPEN DISCUSSION AND WRAP-UP

The next Steering Committee meeting is scheduled for Friday, February 20th. Lynn Manion will send minutes for today's meeting.



Appendix C

Stakeholder Committee Members



Safety and Security at Suburban Bus Stops Stakeholder Committee

Committee Members

Adam McGurk

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Rich Charnovich

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Bob Dudash

URS Corporation Robert Dudash@URSCorp.com

Bob Grimm

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Sara Lupinski

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Consultant

Karen Brean

Brean & Associates kmbrean@aol.com

<u>Staff</u>

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Amy Mathieson

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Appendix D

Stakeholder Committee Meeting Minutes



AIRPORT CORRIDOR TRANSPORTATION ASSOCIATION

Safety & Security at Suburban Bus Stops Stakeholders Committee Meeting Minutes June 10, 2008

Attending:

Lynn Manion ACTA
Amy Mathieson ACTA
Chris Miller ACTA

Lynn Heckman Allegheny Co. Dept. of Econ. Dev. Kristen Sheleheda Beaver County Transit Authority

Jim Vlasach (for Sara Lupinski) Lamar Advertising Scott Brilhart Moon Township

Bob Grimm North Fayette Township

Richard Meritzer City of Pittsburgh

Steve Tima (for Mike Zamiska) Port Authority of Allegheny County

Rich Charnovich Robinson Township

Tom Klevan SPC

Bob Dudash URS Consultants (ACTA Vice-President)

1. BACKGROUND/STUDY ORIGINS

Study Area

L. Manion discussed the origins of the Safety & Security at Suburban Bus Stops Study and distributed a map of the study area which includes portions of Robinson, North Fayette, Moon and Findlay townships.

Walking Tour

ACTA began focusing on the study area as the result of a walking tour of the area that ACTA created for local elected officials a few years ago.

ACTA's Commercial Center Mobility Study

Community Surveys

ACTA received more than 300 pre-study surveys including paper surveys, internet surveys and focus groups..

Outcomes

Based on the survey responses, the study looked at eight mobility issues in the study area. Copies of the eight study areas as well as a summary of the study were distributed.

Next Steps

ACTA is working with municipalities, developers and businesses on helping to move projects along to implementation. ACTA is trying to fulfill

its role as a catalyst to implementation. The current ACTA Walk Challenge is an attempt to get more people thinking about mobility Issues, especially for pedestrians.

ACTA's Existing and Proposed Shuttles

L. Manion reviewed ACTA's current and planned shuttles in the study area and beyond.

2. INTRODUCTION TO SAFETY & SECURITY AT SUBURBAN BUS STOPS

Purpose of the Study

The current study is an outgrowth of ACTA's previous studies as outlined above. The Commercial Center Mobility Study briefly looked at some bus and bus stop issues but it was ultimately decided that this topic required a separate study to explore design issues including placement of stops, access to stops, signage and many others.

Study Outline and Timeline

A copy of the study outline was distributed. The study should be completed in 12 months with the design consultant contract extending 6-9 months.

Steering Committee (Members and Purpose)

L. Manion stated that the Steering Committee would oversee the study and make sure that the scope of work in the PennDOT agreement was completed. All funding/financial issues would also be dealt with by the Steering Committee. Steering Committee members are:

Bob Dudash ACTA Vice President
Lynn Manion ACTA Executive Director
Toby Fauver PennDOT
Lisa Karavage PennDOT

Jackie Koons Felion PennDOT

Stakeholder Committee

Stakeholder Committee members introduced themselves and their affiliations.

Planning Consultant

L. Manion introduced the planning consultant for the study, Karen Brean, who would lead the discussion for #3 on the agenda. Karen was the consultant for ACTA's Commercial Center Mobility Study and helped to develop the proposal for the current study which was an outgrowth of the Mobility Study.

3. WHAT WE WANT TO ACCOMPLISH TODAY

Approval of the RFP

Karen reviewed the RFP. She said that a major goal of the proposal is to develop a bus and pedestrian system that begins to level the playing field between vehicular traffic and pedestrians. She asked for comments and suggestions from the Stakeholders.

Bob Dudash asked about the outcome(s) expected from the study. Was it to develop prototypes or to look at specific bus stops? Karen said that both specific stops and prototypes were to be targeted in the study. So, we're looking for a way to retrofit existing stops that will serve as a prototype for other suburban areas.

Bob Grimm suggested that perhaps "safety and security" should be a requirement in the RFP---that applicants demonstrate competencies in these areas.

- L. Manion stated that language needs to be added to the RFP that the consultant should address improvements to local ordinances regarding bus stops and bus stop placements.
- K. Brean asked the Committee to review a list of suggested consultants to whom the RFP would be sent. She asked if other firms should be added. The Committee suggested adding Burt Hill, Michael Baker and L. Robert Kimball.
- L. Manion asked about including the contract amount. The Committee agreed that the contract amount should be stated.

Richard Meritzer suggested that language be added encouraging applicants to partner with a consultant specializing in ADA issues. Richard will send L. Manion a list of such consultants.

Bob Dudash asked if base maps will be available to the consultant. K. Brean stated that ACTA would supply base maps. A couple of the townships represented stated that they have GIS mapping available. GIS mapping is also available from Allegheny County and the Southwestern PA Commission.

Lynn Heckman offered that the goal of the study is to turn the study area into a place where you can do everything that you want to do, a place that's the intermodal hub between Downtown and the Airport. We want to be able to integrate the study into the county and regional long term plan.

Bob Dudash suggested that the new Settlers Ridge development be considered part of the study area—especially access to the area.

Jim Vlasach said that local ordinances differ. The municipalities and the transit agencies select the stops. When the stops were originally identified there were few pedestrians in the area. There are many more pedestrians in the study area today.

Scott Brilhart stated that there are different designs for bus stops in Moon's comprehensive plan. Lamar will maintain the bus stops as well as any added pedestrian amenities.

Jim Vlasach stated that PennDOT rules and regulations are largely based on safety concerns. Of course, some locations are better than others for placing bus stops and shelters.

Steve Tima offered that in designing bus shelters, consideration must be given to the fit of the bus at the shelter as well as site lines, etc.

Bob Grimm stated that a new shelter is planned at CCAC in North Fayette. He said that PennDOT is asking that all shelters on PennDOT roads be brought up to the standard of the new shelter, a requirement that will be a burden on the township.

K. Brean stated that language will be added to the RFP that applicants must demonstrate an understanding of PennDOT rule and regulations.

RFP Selection Committee

L. Manion asked for volunteers to site on the RFP Selection Committee. Bob Dudash, Bob Grimm, Lynn Heckman, Richard Meritzer and Kristen Sheleheda volunteered.

4. NEXT STEPS

L. Manion stated that the next Committee Meeting will probably be an introductory meeting with the selected consultant. Target date is September.



Safety & Security at Suburban Bus Stops Stakeholders Committee Meeting Minutes September 25, 2008 10:00 a.m. – 1:00 p.m.

Attendees:

Chris Noll Office of Vocational Rehabilitation

Scott Brilhart Township of Moon Bob Dudash URS Corporation

Bob Grimm Township of North Fayette
Tom Klevan Southwestern PA Commission
Richard Meritzer Department of City Planning
Kristen Sheleheda Beaver County Transit Authority
Mike Zamiska Port Authority of Allegheny County

Sara Lupinski Lamar Advertising

Lynn Manion ACTA
Amy Mathieson ACTA
Christine Miller ACTA

Karen Brean Brean & Associates

Erica Bertke Maynes Associates Architects
Greg Maynes Maynes Associates Architects
Paula Maynes Maynes Associates Architects

1. Introductions and Meeting Overview/Logistics

L. Manion called the meeting to order. She invited participants to introduce themselves.

2. Prepare for Walking Tour

Overview of Walking Tour

L. Manion described the path the group would take, stopping at the bus stop at IKEA, traveling to the bus stop at the bridge that crosses the Parkway West on Robinson Town Centre Boulevard and ending at the stop at the corner of Park Manor Boulevard and Park Manor Drive.

ADA Issues

L. Manion introduced Chris Noll, Orientation and Mobility Instructor for the Bureau of Blindness and Visual Services at the Office of Vocational Rehabilitation to talk about issues facing people with visual impairments who use public transportation. Chris will point out barriers during the walking tour.

3. Walking Tour

The Stakeholder Committee walked to three existing bus stations and made the following observations concerning bus stop site conditions:

- Environments lacking well-defined paths may not be negotiable by the visually impaired.
- Maintain consistency of design features and layouts for the visually impaired.
- Provide textural cues (yellow truncated domes) at curb ramps and edge conditions so that the visually impaired do not unknowingly wander into traffic.
- Provide zebra striping at cross walks. Consider raised, rolled-edge crosswalks as a traffic calming measure. C. Noll noted that audible crossing signals can mask traffic noise creating a threat if there is no 'pedestrian only' signal phase.
- Look for educational opportunities to educate public about pedestrian crossing and white cane laws through cooperative efforts with local businesses. Drivers need to learn that the roads are shared with pedestrians and bicyclists.
- Provide crosswalk signage to alert drivers of the presence of pedestrian.
- Enforce/encourage compliance with ADA regulations with property owners and tenants.
- Provide good area lighting. Avoid the 'fish-bowl' effect of night lighting at shelters only.
- Provide visibility to and from the bus stop.
- Avoid placement of advertising panels and landscaping that obstructs views or creates hiding places.

4. Progress Since Our Last Meeting

Bus Stop Inventory

Samples of the bus stop inventory conducted by ACTA were distributed. ACTA surveyed and photographed 38 bus stops in the Robinson-North Fayette commercial area and along University Boulevard in Moon.

Literature Search

Copies of the literature search that ACTA conducted as part of the study were distributed.

<u>Draft Bus User/Non-User Survey</u>

L. Manion distributed copies of a draft survey. The survey will be conducted as brief interviews at the bus stop and mail-in post cards. The survey will distinguish between bus users' perception of safety from crime and safety from traffic. It was decided to target users only since they are most familiar with existing conditions at bus stops.

Consultant Selection

L. Manion briefly reviewed the consultant selection process. Six firms responded to the Request for Proposals. The Consultant Selection Committee (a subcommittee of the Stakeholders Committee) interviewed three of the firms. Maynes Associates Architects was selected. ACTA requested that the consultant

consider adding a expertise in traffic engineering. Maynes selected Mackin Engineering.

5. Maynes Associates

Consultant Plan of Action

- P. Maynes presented the Project Work Plan, to be executed in the following phases with input from the Stakeholder Committee at each phase:
 - Data Collection & Research in process.
 - Prototypical Design & Idea Generation Prototypical designs will describe optimal bus stop site access and configurations and will identify preferred bus stop area amenities. Deliverables will include diagrams/plans and text descriptions of Do's and Don'ts.
 - Develop Recommendations including budget information and suggested zoning changes.
 - Deliver Final Report

Stakeholder Feedback

MAA requested input on 'enhanced amenities' for bus shelters and the transfer hub station:

- Review local signage ordinances for accommodation of the visually and cognitive impaired. Light letters on dark backgrounds are preferred.
- Allow for real time vehicle reporting. (Alternative methods include electronic signage and cell phone messaging).
- · Consider Wi-Fi access.
- Investigate solar panels for lighting or signage systems.
- Identify longer-term opportunities for hub/transfer stations that provide enhanced amenities such as direct access to park and ride lots, indoor waiting, and retail support including Transit-Oriented Development (TOD).
- Provide bicycle amenities at intermodal hub centers.
- Consider the need for maneuverability within the shelter for people using wheelchairs
- Consider contrast issues with signing which is of concern to people with low visibility

Retrofit challenges were discussed throughout the tour and meeting:

- · Available right-of-way conditions are to be verified.
- · Define bus stop retrofit criteria.
- Many townships have existing contracts with various shelter vendors.
- Review local signage ordinances for correspondence with shelter designs.
- Proposed Hub station alternatives are to be discussed with Stakeholders.

6. Wrap Up and Next Meeting

The next meeting, summarizing the data collection and analysis phase, is expected to occur in mid/late-November. Interviews with individual Stakeholders will be scheduled to occur over the next month.



Safety & Security at Suburban Bus Stops Stakeholders Committee Meeting Minutes March 13, 2009 11:00 – 1:00

Attendees:

Bob Dudash URS Corporation

Bob Grimm Township of North Fayette
Tom Klevan Southwestern PA Commission
Kristen Sheleheda Beaver County Transit Authority

Mike Schoss PennDOT District 11-0
Sara Lupinski Lamar Advertising
SteveTima Port Authority
Pete Behrman Port Authority

Lynn Manion ACTA
Amy Mathieson ACTA
Christine Miller ACTA

Erica Bertke Maynes Associates Architects
Greg Maynes Maynes Associates Architects
Paula Maynes Associates Architects
Maynes Associates Architects

Ray Hack Mackin Engineering

The purpose of the meeting was to get feedback from the Stakeholders on four draft prototype bus stop designs:

- Busy Roadway Bus Stop (University Boulevard)
- Suburban Retail Bus Stop (Walmart at The Pointe at North Fayette)
- Hub Station (IKEA at Robinson Town Centre)
- Intermodal Transfer Center (Port Authority Site on Montour Church Road)

Consultant Paula Maynes, using Power Point slides, gave a brief review of study progress to date. She then presented, in detail, designs for each of the prototype sites.

Comments from Stakeholders were as follows:

1. <u>Busy Roadway Bus Stop</u> - PennDOT is obligated to maintain a 10 foot clear area along a 35 MPH roadway. Several other PennDOT regulations regarding bus stops were discussed. Bollards in this clear area would have to be breakaway, however, crushable planters are acceptable. The proposed design does position the shelters at the 10 foot setback. There is a potential conflict between the safety of motorists and the safety of pedestrians.

It was also generally agreed that Bus Bays do not provide the safest retrofit condition for bus patrons and may not be feasible due to dimensional restrictions and the need to control all four corners of an intersection. Bus Bays benefit motorists more than bus drivers and patrons.

- 2. <u>Retail Area Bus Stop</u> The bus stop sign and boarding location will be shifted westward to create more room and allow for easier bus departure from the curb.
- 3. <u>Hub Station</u> It was noted that the proposed protected pedestrian path does not lead to a central location of the strip mall, however, it can be provided without reducing parking capacity. It is also located away from the larger load of vehicle movements. It provides a safe alternative for those who do not wish to cut across the parking lot.

The redesign of the IKEA driveway entrance to the west of the new proposed intersection should be examined for the feasibility of an expansion of the proposed parklet area as part of future improvements.

4. <u>Intermodal Transit Center</u> - Port Authority requested that a potential bridge alignment be illustrated to provide a direct connection between the ITC and the commercial development across Route 60.

The proposed ITC design included a potential Kiss and Ride pull over lane across from the ITC. The grades along Montour Church Road are to be reviewed to verify the feasibility of the pull over.



Appendix E

Request for Proposals



AIRPORT CORRIDOR TRANSPORTATION ASSOCIATION

REQUEST FOR PROPOSALS

Design Services to Support ACTA's Safety and Security at Suburban Bus Stops Project

About ACTA

The Airport Corridor Transportation Association (ACTA), incorporated in 1990, is a nonprofit transportation management association located in Robinson Township, Allegheny County, PA. ACTA is a membership-based organization. Its members include businesses and public sector entities that collaborate to optimize the use of the transportation system in the Pittsburgh International Airport corridor by supporting and implementing demand management strategies. ACTA seeks to broaden the spectrum of travel options and support responsible economic growth.

Background on the Study

Over the past several years, retail, hotel, restaurant, and office development in the Robinson and North Favette Township areas has been very successful. So successful, in fact, that Robinson Town Centre, The Mall at Robinson, and The Pointe at North Fayette are by far the largest concentration of retail in the western suburbs. With this success has come increased movement of all types: vehicular as well as pedestrian and bicycle. The Montour Trail is adjacent to the commercial area. The hub of Port Authority of Allegheny County (PAAC) service for the airport corridor is also in this commercial area. Beaver County Transit Authority (BCTA) makes several stops in the commercial area as well. Pedestrian amenities are few. Most areas do not have sidewalks, steps, handicap ramps, etc. A commercial area developed for the automobile now hosts hundreds of pedestrians each day. With the help of "Walkable Communities, Inc." and Southwestern Pennsylvania Commission (SPC), the region's metropolitan planning agency, ACTA held a community workshop/audit to discuss mobility issues in the commercial area. As part of the workshop, ACTA documented a significant increase in pedestrian traffic through a series of photographs showing the "desire paths" in the unimproved grassy/earth areas, many on steep earth slopes. ACTA subsequently developed a walking tour of the area for local elected officials to illustrate mobility concerns. The problem was highlighted in a feature article in the June, 2004 issue of Pittsburgh Magazine.

Over the past few years, ACTA has conducted two major studies to look at commuting and mobility issues in the airport corridor. Both studies were based on user surveys and focus groups of workers, shoppers, business owners, local residents, bus riders, bicyclists and pedestrians. The first, *Study of Improved shared Ride Transportation Services in the Robinson/North Fayette Employment Center*, looked at where jobs are located and the current barriers and future opportunities for commuters getting to work. The second, *ACTA's Commercial Center Mobility Study*, took a much broader look at mobility issues in the same study area in order to develop a community and user-focused plan of action to improve mobility, enhance intermodal connectivity and create a sense of place in the commercial area which serves as the downtown for the community. These two technical

studies, as well as the three publications produced from the studies: *Commuting in the Corridor*, *A Planner's Notebook* and *Suburban Transportation Solutions* should be reviewed carefully by the consultant.

Purpose of the Study

The current study, Safety and Security at Suburban Bus Stops, is an outgrowth of the two previous studies. The purpose of this study is to use existing conditions in the study area (an area built for vehicular access) to design a set of replicable prototype bus stops and bus stop placements that address mobility and accessibility challenges faced by bus riders in an area with limited pedestrian amenities. Prototypes should address typical suburban bus stop placements including an intermodal hub/transfer stop, a stop along a busy roadway, a stop in an office park, and a stop within a retail mall area. Bus shelter design should incorporate technology related to real-time bus information and pedestrian amenities. The design will also extend to pedestrian access to and around the bus stops so that pedestrian circulation is raised to a level more equal to vehicular travel.

Information Provided to the Consultant

In addition to ACTA studies mentioned above, ACTA will provide a literature search to benchmark innovative approaches to suburban bus stops and access to bus stops in other parts of the country. ACTA will conduct user and non-user surveys (to be developed with input from the consultant) on the pros and cons of existing shelters in the study area and access to those shelters. ACTA will provide an inventory of existing shelters in the study area including photos. ACTA will provide GIS mapping as available through local municipalities, Allegheny County and Southwestern Pennsylvania Commission. The Stakeholder Committee will also provide feedback to the consultant throughout the process.

Project Oversight

The consultant will report to the project Steering Committee, chaired by ACTA Executive Director Lynn Manion. Other Steering Committee members include ACTA Vice President Bob Dudash, and PennDOT Central Office representatives Toby Fauver, Lisa Karavage and Jackie Koons-Felion.

Study Area and Parameters of the Study

The study area focuses on bus stops and existing/potential pedestrian walkways the Robinson-North Fayette retail area including Robinson Town Centre, The Mall at Robinson and The Pointe at North Fayette. In all, the study area includes:

- Portions of Robinson, North Fayette & Moon Townships
- 19 Shopping Areas
- 236 Retail Stores
- 70 Restaurants
- 1 Mall
- 11 Hotels
- 12 Office Buildings
- 1 Office Park (RIDC)
- 4 Gasoline Stations
- 1 Cinema (12 Screens)
- Several Undeveloped Parcels

A map of the study area is attached. ACTA will provide maps of existing sidewalks as well as documented pedestrian "desire lines" and pedestrian counts at and near a few major bus stops in the study area.

Areas to be Addressed by the Consultant

Although direction for the study will come from input from bus riders and non-riders (surveys) and the Stakeholder Committee (meetings), it is anticipated that the consultant will be asked to address some or all (but not limited to) of the functional areas below:

Pedestrian Movements

Pedestrian Circulation in an area that favors motorized vehicles

Bicycle Issues

Bus/Bus Rider Issues

Retail Area as Hub for PAAC & BCTA

Bus Circulation in the Retail Area

Private Shuttles Connections

Bus Stop Locations

Bus Shelters (Lighting, Security, Transit & Other Signage, Maintenance)

Pedestrian Access

Rider Amenities

Intermodal Issues

Better Modal Connectivity at Bus Stops

Safety Issues

Pedestrian & Bicycle Safety

Accommodations for Persons with Disabilities (ADA and universal design

standards). Consultants may want to consider having an ADA consultant as part of the project team.

Consideration of Green Design

Meetings

Steering Committee

The consultant will meet with the Steering Committee monthly. These meetings will likely be one-hour conference calls.

Stakeholders Committee

There will be 3-4 two-hour meetings with the Stakeholders Committee at key junctures during the study. The Stakeholders Committee will provide feedback to the consultant. The stakeholders are representatives of organizations that have a strong interest in the study area and an interest in transit issues and improving intermodal connectivity:

City of Pittsburgh ADA Coordinator

Representatives from ACTA Board and Staff

Allegheny County Department of Development

Beaver County Transit Authority

Lamar Advertising

Montour Trail Council

Moon Township (including Police/EMS)

North Fayette Township (including Police/EMS)

Port Authority of Allegheny County

Robinson Township (including Police/EMS)

Southwestern Pennsylvania Commission

Form of Contract

ACTA has reserved a maximum amount of \$45,000 for consultant services for this project. The consulting fee will be paid upon satisfactory completion of each work task in the work plan and delivery of all products. ACTA anticipates negotiating the work tasks and schedule of progress payments. The consultant will submit monthly invoices and progress reports for work completed.

Deliverables

- 1. Final report including narrative, drawings and cost estimates. Consideration should be given to solutions that are low-cost and easily implementable.
- Suggested amendments to local ordinances to accommodate the proposed design solutions.
- Electronic files of deliverables.

Consultant Proposal to Include

- 1. Qualifications to complete the scope of work outlined in this RFP including:
 - Strong design skills
 - · Ability to design in a broader context
 - Experience in streetscape design
 - Experience in context-sensitive design
 - Strong graphic communication skills
 - Experience in design of intermodal facilities a plus
 - Familiarity with current PennDOT design criteria and procedures
- 2. Details of how the scope of work will be carried out.
- 3. Project schedule (ACTA anticipates the entire study will take 6-9 months to complete).
- 4. Qualifications of the project team, the Project Manager, and the role of each team member in the study including the estimated number of work hours.
- 5. A certificate of insurance with coverage as follows:

\$500,000 Disease - Policy Limit

\$100,000 Disease - Each Employee

Commercial General Liability

In an amount not less than:

\$2,000,000 General Aggregate

\$1,000,000 Personal Injury

\$1,000,000 Each occurrence

Business Automobile Liability

With a Combined Single Limit not less than:

\$1,000,000 Each Accident

\$ 500,000 Uninsured Motorist

\$ 500,000 Underinsured Motorist

Professional Liability

In an amount not less than:

\$1,000,000 Each Claim

\$1,000,000 Aggregate

RFP and Questions

The Request for Proposals for Design Services to Support ACTA's Safety and Security at Suburban Bus Stops Project can be downloaded from ACTA's website (www.acta-pgh.org) on or after Friday, June 20, 2008. Click on News: "Safety and Security at Suburban Bus Stops". A printed version of the RFP can be obtained by fax request to ACTA (412-809-3507) or a written request to:

Lynn Manion

ACTA

Robison Plaza Two, Suite 420

Route 60 & Park Manor Drive

Pittsburgh PA 15205

There will be a scoping meeting including a brief walking tour on Monday, June 30th at 10:00 AM at ACTA, Robinson Plaza Two, Suite 420, Route 60 and Park Manor Boulevard, Pittsburgh PA 15205. Please e-mail Lynn Manion (<u>lynn.manion@alleghenycounty.us</u>) or call 412-809-3507 if you plan to attend.

Selection Process

The Selection Committee will evaluate each proposal submitted according to the following criteria:

Qualifications (30%)

Quality of Proposal (30%)

Understanding of Project Objectives and Scope (20%)

Application of Innovative Techniques (20%)

There is no Disadvantaged/Women Business Enterprise (D/WBE) participation required for this phase of the project. However DBE applicants are encouraged to apply. The top ranked firms with the highest numerical scores may be asked to make oral presentations to the Selection Committee. If needed, presentations are tentatively scheduled for Thursday, July 22, 2008. If oral presentations are required, the project manager must take part in the presentation.

Send Five Copies of the Proposal to:

Lynn Manion, Executive Director Airport Corridor Transportation Association Robinson Plaza Two, Suite 420 Route 60 & Park Manor Drive Pittsburgh, PA 15205

By

Monday, July 14th at 4:00 p.m.

Consultants Notified of Award

Friday, July 25, 2008

Work to Begin

Monday, July 28, 2008

Appendix F

RFP List



AIRPORT CORRIDOR TRANSPORTATION ASSOCIATION

REQUEST FOR PROPOSALS

Design Services to Support ACTA's Safety and Security at Suburban Bus Stops Consultant List

Max Heckman Michael Baker Corporation Airside Business Park 100 Airside Drive Moon Township, PA 15108 412-269-6300

Jeffrey Funovits Burt Hill 650 Smithfield Street Suite 2600 Pittsburgh, PA 15222 412-394-7000

Felix Fukui Fukui Architects 100 Wood Street, Suite 600 Pittsburgh PA 15222 412-281-6001

Jason Roth Hanson Design Group 2333 East Carson Street Pittsburgh PA 15203 412-488-8840

Brad Marstellar Johnson, Mirmiran & Thompson 1550 Coraopolis Heights Road, Suite 440 Moon Township PA 15108 412-375-5125

Joyce Design Group 4411 Butler Street Pittsburgh PA 15201 412-621-2018 Dina Klavon Klavon Design Associates 48 South 15th Street Pittsburgh PA 15203 412-394-1181

Loysen + Kreuthmeier Attn: Sallann Kluz 5116 Penn Avenue Pittsburgh PA 15224 412-924-0006

Bob Genter Mackin Engineering 117 Industry Drive Pittsburgh PA 15275 412-788-0472

Paula Maynes Maynes Associates 1101 Bingham Street Pittsburgh PA 15203 412-488-8890

Mosier Studio 201 South Highland Avenue Pittsburgh PA 15206 412-361-5302

Jim Pashek Pashek Associates 619 East Ohio Street Pittsburgh PA 15212 412-321-6362

Tom Bartnik
Perkins Eastman Architects
1100 Liberty Avenue # D1
Pittsburgh PA 15222
412-456-0900

Brian Krul L. Robert Kimball Frick Building - North Mezzanine 437 Grant Street Pittsburgh PA 15219



Appendix G

Proposal Evaluation Rating Sheet



Safety and Security at Suburban Bus Stops Proposal Evaluation Rating Sheet July 15, 2008

Proposer Name _____

Rating Criteria	Weighting	Rating Score	Weighted Score
A. Qualifications	2		
B. Experience	3		
C. Work Plan	3		
D. Understanding of Project Objectives	1		
E. Creativity of Proposal	1		
Total Weighted Score			

R	tating Score Range: 10 is the highest	0 through 10 possible score
	0 is the lowest po	•
Rating performed by:	B: (N	
	Print Name	Date
	 Signature	



Appendix H

Estimates of Probable Construction Costs for the Prototypes

Item Description	Units	Unit Cost Low	Unit Cost High
1 Prefabricated Shelter	1 EA	\$15,000.00	\$20,000.00
*2 Retaining Walls	64 LF	\$0.00	\$9,600.00
3 Concrete Pavement	1000 SF	\$6,500.00	\$8,500.00
4 Curb Alterations	100 LF	\$2,000.00	\$2,500.00
5 Textured Warning Strips	64 SF	\$500.00	\$1,000.00
6 Bus Stop Sign	1 EA	\$750.00	\$1,000.00
7 I-stop Light	1 EA	\$500.00	\$1,000.00
8 Crushable Planters	0 EA	\$0.00	\$0.00
9 Breakaway Bollards	8 EA	\$6,000.00	\$8,000.00
10 Shelter Lighting	4 EA	\$1,200.00	\$2,000.00
11 Area Lighting	2 EA	\$2,500.00	\$4,000.00
12 Information/Advertising Kiosks	1 EA	\$3,500.00	\$7,000.00
13 AVL announcement system	1 EA	\$2,000.00	\$4,000.00
14 Shelter Benches	1 EA	\$750.00	\$1,800.00
15 Area Benches	1 EA	\$750.00	\$1,800.00
16 Area Tables w/ Seating	0 EA	\$0.00	\$0.00
17 Area Trash Receptacle	1 EA	\$1,500.00	\$2,500.00
18 Bicycle Racks	2 EA	\$1,200.00	\$1,600.00
19 Landscaping/Planting	1 Lot	\$3,000.00	\$10,000.00
20 Trees	2 EA	\$1,000.00	\$2,000.00
21 Shelter Power Supply	1 Lot	\$3,000.00	\$10,000.00
22 Demolition	1 Lot	\$3,000.00	\$6,000.00
23 Asphalt Pavement Repair and Sealing	1 Lot	\$1,000.00	\$3,000.00
Cost Range		\$55,650.00	\$107,300.00

Solar Power could be substituted for a grid power supply

^{*} Retain Walls are only required at non-level sites

Item Description	Units	Unit Cost Low	Unit Cost High
1 Prefabricated Shelter/Wind Screens	1 Lot	\$20,000.00	\$35,000.00
*2 Retaining Walls	0 EA	\$0.00	\$0.00
3 Concrete Pavement Repair	1 Lot	\$2,500.00	\$5,000.00
4 Curb Alterations	0 EA	\$0.00	•
5 Textured Warning Strips	300 SF	\$3,000.00	
6 Bus Stop Sign	1 EA	\$750.00	\$1,000.00
7 I-stop Light	1 EA	\$500.00	\$1,000.00
8 Crushable Planters	8 EA	\$2,000.00	\$4,000.00
9 Breakaway Bollards	0 EA	\$0.00	\$0.00
10 Shelter Lighting	6 EA	\$1,800.00	\$3,000.00
11 Area Lighting	3 EA	\$7,500.00	\$12,000.00
12 Information/Advertising Kiosks	1 EA	\$3,500.00	\$7,000.00
13 AVL announcement system	1 EA	\$2,000.00	\$4,000.00
14 Shelter Benches	3 EA	\$2,200.00	\$5,400.00
15 Area Benches	0 EA	\$0.00	\$0.00
16 Area Tables w/ Seating	0 EA	\$0.00	\$0.00
17 Area Trash Receptacle	3 EA	\$4,500.00	\$7,500.00
18 Bicycle Racks	3 EA	\$1,800.00	\$2,400.00
19 Landscaping/Planting	1 Lot	\$3,000.00	\$10,000.00
20 Trees	8 EA	\$4,000.00	\$6,000.00
21 Shelter Power Supply	1 Lot	\$3,000.00	\$10,000.00
22 Demolition	1 Lot	\$1,500.00	\$3,000.00
23 Asphalt Pavement Repair and Sealing	1 Lot	\$1,000.00	\$3,000.00
Cost Range		\$64,550.00	\$123,300.00

Solar Power could be substituted for a grid power supply

^{*} Retain Walls are only required at non-level sites

Item Description	Units	Unit Cost Low	Unit Cost High
1 Prefabricated Shelter	2 EA	\$30,000.00	\$40,000.00
*2 Retaining Walls	64 LF	\$0.00	\$9,600.00
3 Concrete Pavement	2200 SF	\$15,000.00	\$18,000.00
4 Curb Alterations	100 LF	\$2,000.00	
5 Textured Warning Strips	100 SF	\$1,000.00	
6 Bus Stop Sign	1 EA	\$750.00	\$1,000.00
7 I-stop Light	1 EA	\$500.00	\$1,000.00
8 Crushable Planters	0 EA	\$0.00	\$0.00
9 Breakaway Bollards	8 EA	\$6,000.00	\$8,000.00
10 Shelter Lighting	8 EA	\$2,400.00	\$4,000.00
11 Area Lighting	2 EA	\$2,500.00	\$4,000.00
12 Information/Advertising Kiosks	1 EA	\$3,500.00	\$7,000.00
13 AVL announcement system	1 EA	\$2,000.00	\$4,000.00
14 Shelter Benches	2 EA	\$1,500.00	\$3,600.00
15 Area Benches	2 EA	\$1,500.00	\$3,600.00
16 Area Tables w/ Seating	2 EA	\$3,000.00	\$5,000.00
17 Area Trash Receptacle	2 EA	\$3,000.00	\$5,000.00
18 Bicycle Racks	3 EA	\$1,800.00	\$2,400.00
19 Landscaping/Planting	1 Lot	\$6,000.00	\$12,000.00
20 Trees	4 EA	\$2,000.00	\$4,000.00
21 Shelter Power Supply	1 Lot	\$3,000.00	\$10,000.00
22 Demolition	1 Lot	\$3,000.00	\$6,000.00
23 Asphalt Pavement Repair and Sealing	1 Lot	\$1,000.00	\$3,000.00
Cost Range		\$91,450.00	\$154,900.00

Solar Power could be substituted for a grid power supply

^{*} Retain Walls are only required at non-level sites

Item Description	Units	Unit Cost Low	Unit Cost High
1 Prefabricated Shelter	2 EA	\$30,000.00	\$40,000.00
*2 Patron Waiting/Joint Development Bldg	1000 SF	\$150,000.00	\$300,000.00
3 Concrete Pavement	8000 SF	\$50,000.00	\$65,000.00
4 Curb Alterations	800 LF	\$15,000.00	\$18,000.00
5 Textured Warning Strips	700 SF	\$6,000.00	\$8,000.00
6 Bus Stop Sign	3 EA	\$2,200.00	\$3,000.00
7 I-stop Light	0 EA	\$0.00	\$0.00
8 Crushable Planters	0 EA	\$0.00	\$0.00
9 Decorative Bollards	26 EA	\$19,500.00	\$26,000.00
10 Shelter Lighting	8 EA	\$2,400.00	\$4,000.00
11 Area Lighting	10 EA	\$25,000.00	\$40,000.00
12 Information/Advertising Kiosks	3 EA	\$10,500.00	\$21,000.00
13 AVL announcement system	3 EA	\$6,000.00	\$12,000.00
14 Shelter Benches	8 EA	\$6,000.00	\$14,400.00
15 Area Benches	4 EA	\$3,000.00	\$7,200.00
16 Area Tables w/ Seating	6 EA	\$9,000.00	\$15,000.00
17 Area Trash Receptacle	8 EA	\$12,000.00	\$20,000.00
18 Bicycle Racks	4 EA	\$2,400.00	\$3,200.00
19 Landscaping/Planting	1 Lot	\$5,000.00	\$20,000.00
20 Trees	26 EA	\$500.00	\$1,000.00
21 Shelter Power Supply	1 Lot	\$10,000.00	\$20,000.00
22 Clearing/Grading/Site Preparation	1 Lot	\$90,000.00	\$120,000.00
23 Asphalt Paving/Roadway 12"	1000 SY	\$30,000.00	\$45,000.00
Cost Range		\$484,500.00	\$802,800.00

Other utilities may be desirable for this site other than power. Restrooms would require sewer and water hookups- These hookups are in the Patron Waiting Building costs.



Appendix I

Bus Stop Inventory Checklist



Identification/Location	
1. Is there a shelter?YesNo	
Type of shelter?	
Location (street & cross streets)	
3. Where is the stop positioned?	
Nearside (before the bus crosses the intersection)	
Far Side (after the bus crosses the intersection)	
Mid-block	
At building entrance. What building?	
Pedestrian Access Features	
4. Is there a landing area adjacent to the curb/street?YesNo	
If yes, approximately how wide?	
5. What is the material of the landing area?	
Asphalt Concrete Grass Dirt Gravel	
6. Is there a pedestrian path to/from the shelter?YesNo	
Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Gravel	35
7. Are there physical barriers at/on sidewalk?YesNo	,0
If yes, what are they?	
ii yoo, iiilacaro aroy .	
Connections (Trip Generators)	
8. What are the primary trip generators at the stop?	
ApartmentsS/F HousingSchoolShoppingBus Transfer	
Office Building Park and Ride Other	
9. Where is the nearest street crossing opportunity?	
Are there curb cuts at the nearest intersection?YesNo	
If yes, how many?	
10. Is there a companion bus stop across the street?YesNo	
11. Are there connections to other transportation services at this bus stop?Yes	Nο
PTI ShuttleACTA ShuttleBCTA	
Pedestrian Comfort Amenities	
12. Could a person using a wheelchair fit comfortably under the shelter?YesNo	
13. Could a visually impaired person identify the bus stop?YesNo	
14. Are there damages to the shelter? If so, describe.	

15.	Is there seating in the shelter?YesNo For how many?
Т	ah Asasaswant
	Sh Assessment What type of recentagle?
10.	What type of receptacle? Free-standing Attached to shelter
17	Are there problems with the trash receptacle and the surrounding area?
17.	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesNo
	, <u> </u>
Saf	ety & Security Features
	Where is the bus stop located?
	In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
	What is the posted speed limit?
21.	What are the traffic controls at the nearest intersection?
00	SignalStop/Yield SignNoneOther
	How many total lanes are on both sides of the road?
23.	Are there potential traffic hazards?YesNo
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed traffic
	No crosswalk
Lig	hting Assessment
	What type of lighting is available?
	Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop?YesNo
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
	= .
	ormation Features
	Is there a bus stop sign?YesNo
21.	Are bus routes indicated on the sign?YesNo
20	If yes, what routes? How is the sign installed?
20.	On its own pole
	On a building
	On a utility pole
	On a shelter
29.	Are there problems with the sign?YesNo
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



Appendix J

Bus Stop Inventories in the Study Area



Is there a shelter? X Yes No Type of shelter? LAMAR SHELTER - Robinson Township STY/L 2. Location (street & cross streets) Park Nanor Drive & Pourte Go (Steubenville Pike) 3. Where is the stop positioned? X Nearside (before the bus crosses the intersection) Far Side (after the bus crosses the intersection) Mid-block At building entrance. What building?
Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? YesNo
Connections (Trip Generators) 8. What are the primary trip generators at the stop? Apartments S/F Housing School _X Shopping Bus Transfer X Office Building Park and Ride X Other "Unoffice!" Park 'n Riol Lot 9. Where is the nearest street crossing opportunity? Crosswalk located across from Robinson Court Entrained the result of the street of th
Pedestrian Comfort Amenities 12. Could a person using a wheelchair fit comfortably under the shelter? X YesNo 13. Could a visually impaired person identify the bus stop? X YesNo 14. Are there damages to the shelter? If so, describe. No

15	Is there seating in the shelter? X YesNo For how many? Thue (3)
Tr	ash Assessment
-	. What type of receptacle?
	X Free-standing Attached to shelter
17	Are there problems with the trash receptacle and the surrounding area?
	Trash can full
	Trash can overflowing
	Graffiti
	X Bus stop littered
	X Adjacent property littered
10	Abandoned grocery cart
	Do they create a barrier to ped traffic flow?YesX_No
	fety & Security Features
19.	Where is the bus stop located?
	X In travel lane?
	Bus pull off area
	Paved shoulderUnpaved shoulder
	Off street
20.	What is the posted speed limit? 25 MPH
	What are the traffic controls at the nearest intersection?
	SignalStop/Yield Sign X NoneOther
	How many total lanes are on both sides of the road? Seven (7)
23.	Are there potential traffic hazards? X YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching busHigh speed traffic
	No crosswalk
-	hting Assessment
24.	What type of lighting is available?
	X Street light
Lor	Outside light of adjacent building
	Are there problems with landscaping cround the has star 2
20.	Are there problems with landscaping around the bus stop?Yes _X_NoTrees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	prmation Features
	Is there a bus stop sign? X Yes No
	Are bus routes indicated on the sign? X Yes No
	If yes, what routes? 28 k ; 26 E
28.	How is the sign installed?
	On its own pole
	On a building
	On a utility pole
20	On a shelter
25.	Are there problems with the sign?YesX_NoSign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



ld	entification/Location
1.	Is there a shelter? X Yes No
	Type of shelter? LAMAR SHELTEY - Poblinson Township Style Location (street & cross streets) Park Manor Blub + Robinson Lake
2.	Location (street & cross streets) Park Manor Blub + Robinson Lave
3.	Where is the stop positioned?
	Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? X Yes No
	If yes, approximately how wide? Two (2) FEET
5.	What is the material of the landing area?
	Asphalt _X_ ConcreteGrassDirtGravel
6.	Is there a pedestrian path to/from the shelter? X Yes No
_	Is it AsphaltConcrete (sidewalk)Gravel _X_Desire Line in the Grass
1.	Are there physical barriers at/on sidewalk? Yes X No (N)A)
	If yes, what are they?
Co	onnections (Trip Generators)
8.	What are the primary trip generators at the stop?
•	ApartmentsS/F HousingSchool _X_ShoppingBus Transfer
	Office Building Park and Ride X Other WORKERS
9.	Where is the nearest street crossing opportunity? Park Manor Blub + Robinson Lake
	Are there curb cuts at the nearest intersection? X Yes No
	If yes, how many? One (1) - NEAR STATBUCK'S
10	Is there a companion bus stop across the street? Yes X No
11.	Are there connections to other transportation services at this bus stop? Yes X No
	PTI ShuttleACTA ShuttleBCTA
	destrian Comfort Amenities
12.	Could a person using a wheelchair fit comfortably under the shelter? X YesNo
13. 11	Could a visually impaired person identify the bus stop? X Yes No
	Are there damages to the shelter? If so, describe. No
10.	is there seating in the sheller; F 162 NO

15	For how many? Thue(s)
	ash Assessment . What type of receptacle? Free-standing X Attached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? NoTrash can fullTrash can overflowingGraffitiBus stop litteredAdjacent property littered
18.	Abandoned grocery cart Do they create a barrier to ped traffic flow?YesXNo
	fety & Security Features Where is the bus stop located? _X In travel lane? _Bus pull off area _Paved shoulder _Unpaved shoulder
	Off street What is the posted speed limit? AS MPH What are the traffic controls at the nearest intersection?X_SignalStop/Yield SignNoneOther
	How many total lanes are on both sides of the road? Are there potential traffic hazards? X YesNoBus stop just over crest of hill X Bus stop just beyond curve in the road X Waiting passengers are hidden from view of approaching bus X High speed trafficNo crosswalk
24.	What type of lighting is available? X Street light Outside light of adjacent building
	Are there problems with landscaping around the bus stop?Yes XNoTrees/bushes encroaching the areaTrees/bushes encroaching the sidewalk
26.	Is there a bus stop sign? X YesNo Are bus routes indicated on the sign? X YesNo
	If yes, what routes? <u>ACK', 26E', 25 D (outparen)</u> ; <u>25 C (outparen)</u> How is the sign installed? On its own pole
29.	On a building _X_On a utility poleOn a shelter Are there problems with the sign?Yes _X_No
	Sign is in poor condition Sign position is hazardous to peds Lighting on sign is poor



ld	entification/Location
1.	Is there a shelter? X Yes No
0	Type of shelter? LAMAR - Robinson Township Style Location (street & cross streets) Park Manor Boulevard opposite TKEA Where is the step positioned?
2.	Location (street & cross streets) Park Manor Boulevary opposite TKEA
٥.	where is the stop positioned?
	Nearside (before the bus crosses the intersection)Far Side (after the bus crosses the intersection)
	X Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
4.	Is there a landing area adjacent to the curb/street? X YesNo
	If yes, approximately how wide? Two (z) Feet
	What is the material of the landing area?
	Asphalt _XConcreteGrassDirtGravel
6.	Is there a pedestrian path to/from the shelter? Yes X No
7	Is itAsphaltConcrete (sidewalk)GravelDesire Line in the Grass
1.	Are there physical barriers at/on sidewalk?YesNo - N/A
	If yes, what are they?
C	annections (Trin Congretors)
	onnections (Trip Generators) What are the primary trip generators at the stop?
	ApartmentsS/F Housing _X_School _X_Shopping _X_Bus Transfer
	Office Building Park and Ride X Other Mnofficial "Park in Rise Lot
9.	Where is the nearest street crossing opportunity? None
	Are there curb cuts at the nearest intersection?Yes _xNo
	If yes, how many?
10	Is there a companion bus stop across the street? X Yes No
11.	Are there connections to other transportation services at this bus stop? X Yes No
	PTI Shuttle X_ACTA Shuttle X_BCTA
	destrian Comfort Amenities
12.	Could a person using a wheelchair fit comfortably under the shelter? X YesNo
13.	Could a visually impaired person identify the bus stop? X YesNo
14.	Are there damages to the shelter? If so, describe. No
15.	Is there seating in the shelter? <u>X</u> YesNo
	For how many? Thrue (3)

15. Is there seating in the shelter? X YesNo For how many? Thus (3)	
Trash Assessment 16. What type of receptacle? Free-standingX Attached to shelter 17. Are there problems with the trash receptacle and the surrounding area? No Trash can full Trash can overflowing Graffiti Bus stop littered Adjacent property littered Abandoned grocery cart 18. Do they create a barrier to ped traffic flow?YesXNo	
Safety & Security Features 19. Where is the bus stop located? X In travel lane? Bus pull off area Paved shoulder Unpaved shoulder Off street	
20. What is the posted speed limit? 25 MPH 21. What are the traffic controls at the nearest intersection? SignalStop/Yield Sign _X_NoneOther_ 22. How many total lanes are on both sides of the road? Four Lu) w Control = NESSIAN 23. Are there potential traffic hazards? X_YesNo Bus stop just over crest of hill Bus stop just beyond curve in the road Waiting passengers are hidden from view of approaching bus X_High speed traffic X_No crosswalk	_
Lighting Assessment 24. What type of lighting is available?Street lightXOutside light of adjacent building Landscaping Assessment 25. Are there problems with landscaping around the bus stop?YesXNoTrees/bushes encroaching the areaTrees/bushes encroaching the sidewalk	
Information Features 26. Is there a bus stop sign?Yes _X_No 27. Are bus routes indicated on the sign?YesNo If yes, what routes? 28. How is the sign installed? - N/A On its own pole On a building On a utility pole	
On a shelter 29. Are there problems with the sign?-N/AYesNoSign is in poor conditionSign position is hazardous to pedsLighting on sign is poor	



Identification/Location
1. Is there a shelter? X YesNo
Type of shelter? LANAK - Robinson Township Style 2. Location (street & cross streets) Park Nanor Boulevaro at IKEA
2. Location (street & cross streets) Park Nanor Boulevard at IKEA
3. Where is the stop positioned?
Nearside (before the bus crosses the intersection)
Far Side (after the bus crosses the intersection)
X_Mid-block
At building entrance. What building?
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? X Yes No
If yes, approximately how wide? Two(z) Feet
5. What is the material of the landing area?
AsphaltX_ConcreteGrassDirtGravel
6. Is there a pedestrian path to/from the shelter? Yes X No (Gravel around pan)
Is it AsphaltConcrete (sidewalk)GravelDesire Line in the Grass
7. Are there physical barriers at/on sidewalk?YesNo - N/A
If yes, what are they?
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
ApartmentsS/F Housing _X_School _X_Shopping _X_Bus Transfer
Office Building Park and Ride & Other "Upage and 11 Park to Day of the Day of
Office Building Park and Ride _K Other "Unofficial" Park 'n Ribe Lot; Downtown to 9. Where is the nearest street crossing opportunity? None
Are there curb cuts at the nearest intersection?Yes _X No
If yes, how many?
10. Is there a companion bus stop across the street? X Yes No
11. Are there connections to other transportation services at this bus stop? X Yes No
PTI Shuttle _X_ACTA Shuttle _X_BCTA
TO Statute ACTA Stratule BCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter? X Yes No
13. Could a visually impaired person identify the bus stop? X Yes No
14. Are there damages to the shelter? If so, describe. No
15. Is there seating in the shelter? X YesNo
For how many? Three (3)

18	5. Is there seating in the shelter? X YesNo For how many? Thus (3)
_	woods Accommunity
	rash Assessment
10	6. What type of receptacle?
4-	X Free-standingAttached to shelter
1 /	7. Are there problems with the trash receptacle and the surrounding area? - No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
4.0	Abandoned grocery cart
18	Do they create a barrier to ped traffic flow?YesX_No
Sa	afety & Security Features
	. Where is the bus stop located?
	X In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20	What is the posted speed limit? 25 MPH
	What are the traffic controls at the nearest intersection?
	SignalStop/Yield Sign X None Other
22	How many total lanes are on both sides of the road? Four (4) w Concute Meniar
23	Are there potential traffic hazards? X YesNo
	Bus stop just over crest of hill
	X Bus stop just beyond curve in the road
	K High speed traffic
	_X_No crosswalk
1 :-	
	Inting Assessment
24.	What type of lighting is available?
	X_Street light
	Outside light of adjacent building
	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop?Yes _X_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign?Yes _x_No
27	Are bus routes indicated on the sign?YesNo-N/A
	If yes, what routes?
28.	How is the sign installed?- NIA
	On its own pole
	On a building
	On a utility pole
	On a shelter
29	Are there problems with the sign?-N/AYes No
<u></u>	
	Sign is in poor condition
	Sign position is hazardous to pedsLighting on sign is poor
	Lighting off sight is pool



ld	entification/Location
1.	Is there a shelter? X YesNo
	Type of shelter? LAMAR - Robinson Townstip Style Location (street & cross streets) Park Manor Boulevard + Park Manor Drive
2.	Location (street & cross streets) Park Manor Boulevard + Park Manor Dive
3.	Where is the stop positioned?
	X Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? X Yes No
	If yes, approximately how wide? Two(z) Feet
5.	What is the material of the landing area?
	Asphalt Concrete Grass Dirt Gravel
6.	Is there a pedestrian path to/from the shelter? X Yes No
	Is it AsphaltX_Concrete (sidewalk)GravelDesire Line in the Grass
7.	Are there physical barriers at/on sidewalk? Yes 🔀 No
	If yes, what are they?
C-0	proofice (Trip Concrete va)
8	What are the primary trip generators at the stand
Ο.	What are the primary trip generators at the stop?
	ApartmentsS/F HousingSchool _X_ShoppingBus Transfer Office BuildingPark and Ride _X_Other <u>Downtown Trips</u>
9	Where is the nearest street crossing opportunity? Park Manor Blub + Park Manor Dr.
•	Are there curb cuts at the nearest intersection? X YesNo
	If yes, how many? Thus (3)
	Is there a companion bus stop across the street?Yes _X_No
11.	Are there connections to other transportation services at this bus stop? Yes X No
	PTI ShuttleACTA ShuttleBCTA
_	
	destrian Comfort Amenities
12.	Could a person using a wheelchair fit comfortably under the shelter? X YesNo
13.	Could a visually impaired person identify the bus stop? 🗶 Yes No
14.	Are there damages to the shelter? If so, describe. No
15.	Is there seating in the shelter? X YesNo
	For how many? Three (3)

15. Is there seating in the shelter? X YesNo For how many? Three
Trash Assessment 16. What type of receptacle?
Safety & Security Features 19. Where is the bus stop located? X In travel lane? Bus pull off area Paved shoulder Unpaved shoulder Off street 20. What is the posted speed limit? 25 MPH 21. What are the traffic controls at the nearest intersection? X Signal Stop/Yield Sign None Other 22. How many total lanes are on both sides of the road? Five (s) 33. Are there potential traffic hazards? X Yes No Bus stop just over crest of hill Bus stop just beyond curve in the road Waiting passengers are hidden from view of approaching bus X High speed traffic No crosswalk
Lighting Assessment 24. What type of lighting is available? Street light (MINIMA) - ONL POLE) Outside light of adjacent building Landscaping Assessment 25. Are there problems with landscaping around the bus stop? Yes No Trees/bushes encroaching the area Trees/bushes encroaching the sidewalk
Information Features 26. Is there a bus stop sign? X YesNo 27. Are bus routes indicated on the sign?YesX_No If yes, what routes? 28. How is the sign installed?
On its own poleOn a buildingX_On a utility poleOn a shelter 29. Are there problems with the sign? X_YesNoSign is in poor conditionSign position is hazardous to pedsX_Lighting on sign is poor



ld	lentification/Location
1.	Is there a shelter? X YesNo
_	Type of shelter? LAMAR - OLDER STYLE
2.	Location (street & cross streets) Mall at Tobinson - Entry K
3.	where is the stop positioned?
	Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	Mid-block
	_x_At building entrance. What building? The Nall at Robinson
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? X Yes No
	If yes, approximately how wide? One (1) Foot
5.	What is the material of the landing area?
	Asphalt _X_ConcreteGrassDirtGravel
6.	Is there a pedestrian path to/from the shelter? X Yes No
	Is it AsphaltX_Concrete (sidewalk) Gravel Desire Line in the Grass
7.	Are there physical barriers at/on sidewalk?Yes _x No
	If yes, what are they?
_	
	onnections (Trip Generators)
8.	What are the primary trip generators at the stop?
	ApartmentsS/F HousingSchool _X_ShoppingBus Transfer
^	Office BuildingPark and RideOther
9.	Where is the nearest street crossing opportunity? N/A Are there curb cuts at the nearest intersection? × YesNo
	Are there curb cuts at the nearest intersection? X YesNo
10	If yes, how many? One (1) at DIEK'S SpORTING GOODS ENTRY
10 11	Is there a companion bus stop across the street?Yes / X_No
1 1	Are there connections to other transportation services at this bus stop? X Yes No
	PTI ShuttleACTA Shuttle _X_BCTA
Pe	edestrian Comfort Amenities
12	Could a person using a wheelchair fit comfortably under the shelter?YesX_No
13	Could a visually impaired person identify the bus stop? X YesNo
14	Are there damages to the shelter? If so, describe. No
15	Is there seating in the shelter? X Yes No
	For how many? Two (2)
	,

15	For how many? Two (2)
16 17	**Mhat type of receptacle? X Free-standing Attached to shelter Are there problems with the trash receptacle and the surrounding area? - \(\int \) (o Trash can full Trash can overflowing Graffiti Bus stop littered Adjacent property littered Abandoned grocery cart Do they create a barrier to ped traffic flow? YesXNo
20. 21.	Where is the bus stop located? In travel lane?Bus pull off areaPaved shoulderUnpaved shoulderUnpaved shoulderV Off street What is the posted speed limit? N) A - parking Lot'; Private Property What are the traffic controls at the nearest intersection? - N/ASignalStop/Yield SignNoneOther How many total lanes are on both sides of the road? N/A Are there potential traffic hazards?Yes _X_NoBus stop just over crest of hillBus stop just beyond curve in the roadWaiting passengers are hidden from view of approaching busHigh speed trafficNo crosswalk
	What type of lighting is available? Street lightX_ Outside light of adjacent building
	Are there problems with landscaping around the bus stop?YesX_NoTrees/bushes encroaching the areaTrees/bushes encroaching the sidewalk
26. 27.	Is there a bus stop sign? X_YesNo Are bus routes indicated on the sign? X_YesNo If yes, what routes? 21 C; 25 A; 25 C (outputed); 25 D (outputed) How is the sign installed?
29.	X On its own pole On a building On a utility pole On a shelter Are there problems with the sign? Sign is in poor condition Sign position is hazardous to peds Lighting on sign is poor



lde	ntification/Location
	s there a shelter? _X_YesNo
	Type of shelter? LAMAY - Robinson Township style
2. 1	ocation (street & cross streets) Park Manor Blup + Poblism Town Centre Blub.
3. \	Where is the stop positioned?
	X Nearside (before the bus crosses the intersection)
-	Far Side (after the bus crosses the intersection)
-	Mid-block
-	At building entrance. What building?
-	
Par	lestrian Access Features
	s there a landing area adjacent to the curb/street?K_Yes No
7. 1	f ves approximately how wide? To the Curb/street? A yesNo
5 \	f yes, approximately how wide? Two (2) wet What is the material of the landing area?
6 Ī	AsphaltX_ConcreteGrassDirtGravel
O. 1	s there a pedestrian path to/from the shelter? X Yes No
. I	s itAsphaltConcrete (sidewalk)Gravel K_Desire Line in the Grass
1. 1.	Are there physical barriers at/on sidewalk?YesNo-N/A
,	f yes, what are they?
C	modiene (Trie Occur)
	nnections (Trip Generators)
8. V	Vhat are the primary trip generators at the stop?
_	ApartmentsS/F HousingSchool X_ShoppingBus Transfer
	Office BuildingPark and RideOther
9. V	Vhere is the nearest street crossing opportunity? Park Manor Blub Pohinson Town Cartu Blub.
F	re there curb cuts at the nearest intersection?Yes _X_No
	yes, how many?
10.	Is there a companion bus stop across the street?YesX_No
11.	Are there connections to other transportation services at this bus stop?Yes _X No
	PTI ShuttleACTA ShuttleBCTA
	estrian Comfort Amenities
12.	Could a person using a wheelchair fit comfortably under the shelter? X YesNo
13.	Could a visually impaired person identify the bus stop? 🗶 Yes 📉 No
14.	Are there damages to the shelter? If so, describe. No
15.	Is there seating in the shelter? X Yes No
	For how many? There (3)

15	Is there seating in the shelter? X YesNo For how many? Thue (3)
16	ash Assessment What type of receptacle? Free-standingX Attached to shelter Are there problems with the trash receptacle and the surrounding area? Trash can full Trash can overflowing Graffiti Bus stop littered Adjacent property littered Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?Yes _X_No
20. 21.	Where is the bus stop located? **In travel lane? Bus pull off area Paved shoulder Unpaved shoulder Off street What is the posted speed limit? **25 **M**PH* What are the traffic controls at the nearest intersection? **Signal Stop/Yield Sign None Other How many total lanes are on both sides of the road? **Five (5)* Are there potential traffic hazards? **X Yes No Bus stop just over crest of hill Bus stop just beyond curve in the road Waiting passengers are hidden from view of approaching bus High speed traffic No crosswalk
	What type of lighting is available?
<u>Lar</u>	Street lightXOutside light of adjacent building Indecaping Assessment Are there problems with landscaping around the bus stop?YesX_NoTrees/bushes encroaching the areaTrees/bushes encroaching the sidewalk
	Is there a bus stop sign? X Yes No
	Are bus routes indicated on the sign?YesNo
	If yes, what routes? How is the sign installed? Y On its own pole On a building On a utility pole On a shelter
29.	Are there problems with the sign? X YesNoSign is in poor conditionSign position is hazardous to pedsLighting on sign is poor

Date Jun 24, 2008



Identification/Location		
1. Is there a shelter?Yes _X_No		
Type of shelter?		
2. Location (street & cross streets) Wal-Mart Entrance		
3. Where is the stop positioned?		
Nearside (before the bus crosses the intersection)		
Far Side (after the bus crosses the intersection)		
Mid-block		
X_At building entrance. What building? Wal- Mart		
Pedestrian Access Features		
4. Is there a landing area adjacent to the curb/street?Yes X No		
If yes, approximately how wide?		
5. What is the material of the landing area?		
AsphaltConcreteGrassDirtGravel		
6. Is there a pedestrian path to/from the shelter? Yes No		
Is it Asphalt _X_Concrete (sidewalk) Gravel Desire Line in the Grass		
7. Are there physical barriers at/on sidewalk?Yes _X_No		
If yes, what are they?		
Connections (Trip Generators)		
8. What are the primary trip generators at the stop?		
ApartmentsS/F HousingSchool _X_ShoppingBus Transfer		
Office Building Park and Ride Other		
9. Where is the nearest street crossing opportunity? N) A Are there curb cuts at the nearest intersection? Yes No-w/A		
Are there curb cuts at the nearest intersection? Yes No-1/A		
If yes, now many?		
10. Is there a companion bus stop across the street?YesX No		
11. Are there connections to other transportation services at this bus stop? X Yes No		
PTI ShuttleBCTA		
Pedestrian Comfort Amenities		
12. Could a person using a wheelchair fit comfortably under the shelter?YesX_No		
13. Are there damages to the shelter? If so, describe. N/A		
14. Is there seating in the shelter? Yes X No		
For how many? There are benches at the wal-MART Entrance That could		
SEAT TWO INDIVIDUALS EACH		
The second secon		

15	For how many?
мун	
	ash Assessment
10	What type of receptacle?
17	X Free-standing Attached to shelter
1 /	. Are there problems with the trash receptacle and the surrounding area? - No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
10	Abandoned grocery cart
10	. Do they create a barrier to ped traffic flow?Yes _X_No
	fety & Security Features
19	. Where is the bus stop located?
	In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	What is the posted speed limit? - N/4 (parking lot; private property)
20	What is the posted speed limit? - N/4 (Parking 187)
21.	What are the traffic controls at the nearest intersection?
00	SignalStop/Yield Sign X_NoneOther
	How many total lanes are on both sides of the road? N/A
23.	Are there potential traffic hazards?Yes _X_No
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching busHigh speed traffic
	Ngrispeed traine
	NO GIGGOWAIN
Lig	hting Assessment
24.	What type of lighting is available?
	Street light
	χ Outside light of adjacent building
	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop?Yes _X_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Inf	ormation Features
According to the owner, where the	Is there a bus stop sign? K Yes No
	Are bus routes indicated on the sign? X Yes No
	If yes, what routes? 25 A
28.	How is the sign installed?
	_X_On its own pole
	On a building
	On a utility pole
	On a shelter
29.	Are there problems with the sign? Yes X No
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor

Date Jun 24, 208



1. Is there a shelter? X YesNo Type of shelter? LAMAR - North Fourth Founting Style. 2. Location (street & cross streets) Summit Park Drive + Andrew Drive 3. Where is the stop positioned? X Nearside (before the bus crosses the intersection) Far Side (after the bus crosses the intersection) Mid-block At building entrance. What building? Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide? Two (2) Feet 5. What is the material of the landing area? Asphalt X ConcreteGrassDirtGravel 6. Is there a pedestrian path to/from the shelter?Yes _X No Is it AsphaltConcrete (sidewalk)GravelDesire Line in the Grass 7. Are there physical barriers at/on sidewalk?YesNo -N/A If yes, what are they? Connections (Trip Generators)
2. Location (street & cross streets) Summit Park brike * Angles Miles 3. Where is the stop positioned? X Nearside (before the bus crosses the intersection) Far Side (after the bus crosses the intersection) Mid-block At building entrance. What building? Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide? Two (2) Feet 5. What is the material of the landing area? Asphalt X Concrete Grass Dirt Gravel 6. Is there a pedestrian path to/from the shelter? Yes X No Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass 7. Are there physical barriers at/on sidewalk? Yes No -N/A If yes, what are they? Connections (Trip Generators)
2. Location (street & cross streets) Summit Park brike * Angles Miles 3. Where is the stop positioned? X Nearside (before the bus crosses the intersection) Far Side (after the bus crosses the intersection) Mid-block At building entrance. What building? Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide? Two (2) Feet 5. What is the material of the landing area? Asphalt X Concrete Grass Dirt Gravel 6. Is there a pedestrian path to/from the shelter? Yes X No Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass 7. Are there physical barriers at/on sidewalk? Yes No -N/A If yes, what are they? Connections (Trip Generators)
3. Where is the stop positioned? X_Nearside (before the bus crosses the intersection) Far Side (after the bus crosses the intersection) Mid-block At building entrance. What building?
Far Side (after the bus crosses the intersection)Mid-blockAt building entrance. What building?
Far Side (after the bus crosses the intersection)Mid-blockAt building entrance. What building?
Mid-blockAt building entrance. What building? Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street?
Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide? Two (2) Feet 5. What is the material of the landing area? AsphaltX Concrete Grass Dirt Gravel 6. Is there a pedestrian path to/from the shelter? YesX No Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass 7. Are there physical barriers at/on sidewalk? Yes No -N/A If yes, what are they?
4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide? Two (z) Feet 5. What is the material of the landing area?AsphaltX ConcreteGrassDirtGravel 6. Is there a pedestrian path to/from the shelter?YesX No
4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide? Two (z) Feet 5. What is the material of the landing area?AsphaltX ConcreteGrassDirtGravel 6. Is there a pedestrian path to/from the shelter?YesX No
If yes, approximately how wide? Two (2) Feet 5. What is the material of the landing area? AsphaltX_ Concrete Grass Dirt Gravel 6. Is there a pedestrian path to/from the shelter? YesX_ No
5. What is the material of the landing area? Asphalt _X_ConcreteGrassDirtGravel 6. Is there a pedestrian path to/from the shelter?Yes _X_No Is itAsphaltConcrete (sidewalk)GravelDesire Line in the Grass 7. Are there physical barriers at/on sidewalk?YesNo -N/A If yes, what are they?
Asphalt _X_ConcreteGrassDirtGravel 6. Is there a pedestrian path to/from the shelter?Yes _X_No Is itAsphaltConcrete (sidewalk)GravelDesire Line in the Grass 7. Are there physical barriers at/on sidewalk?YesNo -N/A If yes, what are they?
6. Is there a pedestrian path to/from the shelter?Yes _XNo Is it AsphaltConcrete (sidewalk) Gravel Desire Line in the Grass 7. Are there physical barriers at/on sidewalk?YesNo -N/ A If yes, what are they?
Is it AsphaltConcrete (sidewalk) Gravel Desire Line in the Grass 7. Are there physical barriers at/on sidewalk? Yes No -N/ A If yes, what are they? Connections (Trip Generators)
/. Are there physical barriers at/on sidewalk?YesNo -N/A If yes, what are they? Connections (Trip Generators)
If yes, what are they? Connections (Trip Generators)
Connections (Trip Generators)
Connections (Trip Generators)
O Marie de la companya de la company
8. What are the primary trip generators at the stop?
ApartmentsS/F HousingSchool X_ShoppingBus Transfer
Office Building Park and Ride Other
9. Where is the nearest street crossing opportunity? Summit Park Drive + Angulo Drive
Are there curb cuts at the nearest intersection?Yes _X_No
If yes, how many?
10. Is there a companion bus stop across the street? X YesNo
11. Are there connections to other transportation services at this bus stop?YesX_No
PTI Shuttle ACTA Shuttle BCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter?YesX_No
13. Could a visually impaired person identify the bus stop? X YesNo
14. Are there damages to the shelter? If so, describe. No
15. Is there seating in the shelter? \(\frac{1}{\infty}\) Yes \(\frac{1}{\infty}\) No
For how many? 2-3 People

15	Is there seating in the shelter? X YesNo For how many? 2-3 people
	ash Assessment
16.	What type of receptacle?
17	Free-standing Attached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? - No Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
	Where is the bus stop located?
	<u>≭</u> In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
20.	Off street What is the posted speed limit? 30 MPH
	What are the traffic controls at the nearest intersection?
A 1 -	X SignalStop/Yield SignNoneOther
22.	How many total lanes are on both sides of the road? Five (s)
23.	Are there potential traffic hazards? X Yes No
	Bus stop just over crest of hill
	➤ Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	<u>火</u> High speed traffic No crosswalk
	No crosswark
	hting Assessment
24.	What type of lighting is available?
	Street light
Lor	XOutside light of adjacent building
	Are there problems with landscaping around the hus stand.
20.	Are there problems with landscaping around the bus stop?YesX_NoTrees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
	ormation Features
	Is there a bus stop sign? Yes No
21.	Are bus routes indicated on the sign?YesNo - N/A If yes, what routes?
28	How is the sign installed? -N/A
	On its own pole
	On a building
	On a utility pole
	On a shelter
	Are there problems with the sign?-N/AYesNo
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



Identification/Location	
1. Is there a shelter? X Yes No	
Type of shelter? LAMAR - NORTH Fayette Style	
2. Location (street & cross streets) Summit Park Dive + Quinn Dive	-
3. Where is the stop positioned?	-
Nearside (before the bus crosses the intersection)	
Far Side (after the bus crosses the intersection)	
X Mid-block (Strip Wall Entrance)	
At building entrance. What building?	
Pedestrian Access Features	
4. Is there a landing area adjacent to the curb/street? X Yes No	
If yes, approximately how wide? One (1) Foot	
5. What is the material of the landing area?	
Asphalt <u></u> Concrete Grass Dirt Gravel	
6. Is there a pedestrian path to/from the shelter? Yes X No	
Is it AsphaltConcrete (sidewalk)GravelDesire Line in the Grass	
7. Are there physical barriers at/on sidewalk? Yes No No No	
If yes, what are they?	
Connections (Trip Generators)	
8. What are the primary trip generators at the stop?	
ApartmentsS/F HousingSchool _X_ShoppingBus Transfer	
Office Building Park and Ride Other	
9. Where is the nearest street crossing opportunity? Summit Park buke + Quinn Dive (No 1	LOSSWALK
Are there curb cuts at the nearest intersection?YesX_No	
If yes, how many?	
10. Is there a companion bus stop across the street? X YesNo	
11. Are there connections to other transportation services at this bus stop?YesX No	
PTI ShuttleACTA ShuttleBCTA	
Pedestrian Comfort Amenities	
12. Could a person using a wheelchair fit comfortably under the shelter? Yes X No	
13. Could a visually impaired person identify the bus stop? X Yes No	
14. Are there damages to the shelter? If so, describe. No	
15. Is there seating in the shelter? <u>x</u> YesNo	
For how many? 2-3 people	

15. Is there seating in the shelter? <u>X</u> YesNo For how many? 2-3 people
Trash Assessment 16. What type of receptacle? Free-standingX_Attached to shelter
17. Are there problems with the trash receptacle and the surrounding area? - NoTrash can fullTrash can overflowing
GraffitiBus stop litteredAdjacent property litteredAbandoned grocery cart
18. Do they create a barrier to ped traffic flow?Yes _xNo
Safety & Security Features 19. Where is the bus stop located? In travel lane? Bus pull off area Paved shoulder Unpaved shoulder Off street
20. What is the posted speed limit? 30 MPH 21. What are the traffic controls at the nearest intersection?
Signal _xStop/Yield SignNoneOther
Lighting Assessment 24. What type of lighting is available? Street lightX Outside light of adjacent building (Parkine LOT LIGHTINE)
Landscaping Assessment 25. Are there problems with landscaping around the bus stop?YesX_NoTrees/bushes encroaching the areaTrees/bushes encroaching the sidewalk
Information Features 26. Is there a bus stop sign? ✓ Yes No 27. Are bus routes indicated on the sign? ✓ Yes No
If yes, what routes? <u>ASA', ALE', ASM</u> 28. How is the sign installed? X On its own pole
On a buildingOn a utility poleOn a shelter 29. Are there problems with the sign? Yes X No
Sign is in poor condition Sign position is hazardous to peds Lighting on sign is poor

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Date June 24, 2008



ld	<u>entification/Location</u>
	Is there a shelter? X Yes No
	Type of shelter? LAMAR - NORTH FAMELY TOWNSHIP Style
2.	Location (street & cross streets) Summit Park Dive opposite Quinn Dive
3.	Where is the stop positioned?
	X Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? \(\times \) Yes \(\times \) No
	If yes, approximately how wide? Ou (1) Foot
5.	What is the material of the landing area?
	AsphaltX_ConcreteGrass Dirt Gravel
	Is there a pedestrian path to/from the shelter? Yes X No
	Is it AsphaltConcrete (sidewalk)GravelDesire Line in the Grass
7.	Are there physical barriers at/on sidewalk?YesNo -N A
	If yes, what are they?
Co	onnections (Trip Generators)
8	What are the primary trip generators at the stop?
• •	ApartmentsS/F HousingSchool _X_ShoppingBus Transfer
	Office Building Park and Ride Other
9	Where is the nearest street crossing opportunity? Sumuit Park burk + Quinn burk
٠.	Are there curb cuts at the nearest intersection?Yes _X_ No
	If yes, how many?
10	Is there a companion bus stop across the street? X YesNo
11	Are there connections to other transportation services at this bus stop?YesX_No
	PTI ShuttleACTA Shuttle BCTA
	BOTA
Pe	destrian Comfort Amenities
12.	Could a person using a wheelchair fit comfortably under the shelter? YesNo
13.	Could a visually impaired person identify the bus stop? <u>K</u> YesNo
14.	Are there damages to the shelter? If so, describe. No
15.	Is there seating in the shelter? X Yes No
	For how many? 2-3 Deep Le

15. Is there seating in the shelter? <u>K</u> YesNo For how many? <u>2-3 people</u>
Trash Assessment
16. What type of receptacle?
Free-standing X Attached to shelter
17. Are there problems with the trash receptacle and the surrounding area? - No
Trash can full
Trash can overflowing
Graffiti
Bus stop littered
Adjacent property littered
Abandoned grocery cart
18. Do they create a barrier to ped traffic flow?Yes _X_No
Safety & Security Features
19. Where is the bus stop located?
X In travel lane?
Bus pull off area
Paved shoulder
Unpaved shoulder
Off street
20. What is the posted speed limit? 30 MPH
21. What are the traffic controls at the nearest intersection?
Signal _X_Stop/Yield SignNoneOther
22. How many total lanes are on both sides of the road? Four (4)
23. Are there potential traffic hazards? <u>k</u> YesNo
Bus stop just over crest of hill
Bus stop just beyond curve in the road
Waiting passengers are hidden from view of approaching bus
<u>_</u> K_High speed traffic
xNo crosswalk
Lighting Assessment
24. What type of lighting is available?
Street light
X Outside light of adjacent building
Landscaping Assessment
25. Are there problems with landscaping around the bus stop? Yes X No
Trees/bushes encroaching the area
Trees/bushes encroaching the sidewalk
Information Features
26. Is there a bus stop sign? K Yes No
27. Are bus routes indicated on the sign? X Yes No
If yes, what routes? 25 A 2 2 E 2 28 M
28. How is the sign installed?
kOn its own pole
On a building
On a utility pole
On a shelter
29. Are there problems with the sign? Yes No
Sign is in poor condition
Sign position is hazardous to peds
✓ Lighting on sign is poor

Date Jun 24, 2008



ld	entification/Location
1.	Is there a shelter?Yes _X_No
2	Type of shelter?
2.	Location (street & cross streets) Summit Park Dive Annew Dive (WAL-MART SIDE) Where is the stop positioned?
Ο.	Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
4.	Is there a landing area adjacent to the curb/street? X Yes No
	If yes, approximately how wide? One (1) Foot
	What is the material of the landing area?
6	Asphalt Concrete Carass Dirt Gravel
Ο.	Is there a pedestrian path to/from the shelter? Yes X No
7	Is it AsphaltConcrete (sidewalk) Gravel Desire Line in the Grass Are there physical barriers at/on sidewalk?YesX_No - N/A
٠.	If yes, what are they?
Cc	nnections (Trip Generators)
	What are the primary trip generators at the stop?
	ApartmentsS/F HousingSchool _x_ShoppingBus Transfer
	Office Building Park and Ride Other
9.	Where is the nearest street crossing opportunity? Sunnit Park blue Annu blue
	Are there curb cuts at the nearest intersection?Yes _X_No
	If yes, how many?
10.	Is there a companion bus stop across the street? X Yes No
	Are there connections to other transportation services at this bus stop?Yes _X_NoPTI ShuttleACTA Shuttle BCTA
	BOTA
Pe	destrian Comfort Amenities
	Could a person using a wheelchair fit comfortably under the shelter?YesNo - N/A
13.	Could a visually impaired person identify the bus stop?Yes _X_No
14.	Are there damages to the shelter? If so, describe. N/A
15.	Is there seating in the shelter?YesNo -N/A
	For how many?

15	For how many?YesNo - N/A
	ash Assessment
16	. What type of receptacle? - N/A
17	Free-standingAttached to shelter
1.7	Are there problems with the trash receptacle and the surrounding area? - 445 Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
	<u>×</u> Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow? X YesNo
Sa	fety & Security Features
	Where is the bus stop located?
	<u></u> In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
20	Off street What is the posted speed limit? 30 MPH
	What are the traffic controls at the nearest intersection?
	∠ SignalStop/Yield SignNoneOther
22.	How many total lanes are on both sides of the road? Five (5)
	Are there potential traffic hazards? <u>K</u> YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed trafficNo crosswalk
	NO GIOSSWAIK
Lig	hting Assessment
24.	What type of lighting is available?
	Street light
	Outside light of adjacent building
	ndscaping Assessment
∠ 5.	Are there problems with landscaping around the bus stop?Yes _X_NoTrees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
	Trees/basiles characting the sidewalk
Info	ormation Features
	Is there a bus stop sign? X YesNo
27.	Are bus routes indicated on the sign? X YesNo
28	If yes, what routes? 25A', 26E', 28 M
20.	How is the sign installed? ✓ On its own pole
	On a building
	On a utility pole
	On a shelter
29.	Are there problems with the sign? X YesNo
	Sign is in poor condition
	Sign position is hazardous to peds
	Y Lighting on sign is poor

Date Jun 24, 2008



1. Is there a shelter? X YesNo Type of shelter? LAMAR - NORTH Fayette Township Style.
Type of shelter? LAMAR - North Fayette Township Style 2. Location (street & cross streets) Summit Pank Mine opposite Chavet Drive 3. Where is the stop positioned? X Nearside (before the bus crosses the intersection) Far Side (after the bus crosses the intersection) Mid-block At building entrance. What building?
Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide?(z) Feet 5. What is the material of the landing area? Asphalt ConcreteX Grass Dirt Gravel 6. Is there a pedestrian path to/from the shelter? Yes No Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass 7. Are there physical barriers at/on sidewalk? Yes No -N/A If yes, what are they?
Connections (Trip Generators) 8. What are the primary trip generators at the stop? Apartments S/F Housing School _X_ Shopping Bus Transfer Office Building Park and Ride Other_ 9. Where is the nearest street crossing opportunity? Swall Flow Dave + Charlet Inventor Are there curb cuts at the nearest intersection? Yes No If yes, how many? Four (4) 10. Is there a companion bus stop across the street? X_ Yes No 11. Are there connections to other transportation services at this bus stop? Yes No PTI Shuttle ACTA Shuttle BCTA
Pedestrian Comfort Amenities 12. Could a person using a wheelchair fit comfortably under the shelter? YesNo 13. Could a visually impaired person identify the bus stop? YesNo 14. Are there damages to the shelter? If so, describe. No 15. Is there seating in the shelter? YesNo For how many? 2-3 peocle

15	Is there seating in the shelter? X YesNo For how many? 2-3 people
Tr	ash Assessment
-	. What type of receptacle?
	Free-standing
17	Are there problems with the trash receptacle and the surrounding area? -No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
40	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
19.	Where is the bus stop located?
	<u>火</u> In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
20	Off street
	What is the posted speed limit? 36 MPH
21.	What are the traffic controls at the nearest intersection?
22	SignalStop/Yield SignNoneOther_ How many total lanes are on both sides of the road? Four (4)
	Are there potential traffic hazards? *Yes No
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	∠ High speed traffic
	No crosswalk
Lio	hting Assessment
	What type of lighting is available?
27.	Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
	Are there problems with landscaping around the bus stop?Yes _K_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign? X Yes No
27.	Are bus routes indicated on the sign? X Yes No
	If yes, what routes? 25 A; 26 E; 28 M; 25 C (outbate)
28.	How is the sign installed?
	On its own pole
	On a building
	On a utility pole
20	On a shelter
29.	Are there problems with the sign? <u>K</u> YesNo
	Sign is in poor condition
	Sign position is hazardous to peds
	X_Lighting on sign is poor

Date JUN 24, 2008



ld	entification/Location
and the last of	Is there a shelter? X Yes No
	Type of shelter? LAMAY - NORTH Fayette Township Style Location (street & cross streets) Summit Park Drive - Chavrit Drive
2.	Location (street & cross streets) Sumuit Park Drive + Chauset Drive
3.	Where is the stop positioned?
	_X_Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	Mid-block
	At building entrance. What building?
Po	edestrian Access Features
	Is there a landing area adjacent to the curb/street? <u>K</u> YesNo
	If yes, approximately how wide? One (1) For t
5.	What is the material of the landing area?
	AsphaltX_ConcreteGrassDirtGravel
6.	Is there a pedestrian path to/from the shelter? Yes No
	Is it Asphalt Concrete (sidewalk) Gravel _X_ Desire Line in the Grass (FILLSTONE \$1
7.	Are there physical barriers at/on sidewalk? Yes No -N/A
	If yes, what are they?
Co	onnections (Trip Generators)
8.	What are the primary trip generators at the stop?
	ApartmentsS/F HousingSchool _X_ShoppingBus Transfer
	Off. B 11.11
9.	Where is the nearest street crossing opportunity? Summit Park Drive + Chaovet by
	Are there curb cuts at the nearest intersection? X Yes No
	If yes, how many? Four (4)
10	. Is there a companion bus stop across the street? X YesNo
11	. Are there connections to other transportation services at this bus stop?Yes _x No
	PTI ShuttleACTA ShuttleBCTA
	edestrian Comfort Amenities
12	Could a person using a wheelchair fit comfortably under the shelter? KYesNo
13	. Could a visually impaired person identify the bus stop? 🗶 Yes 💮 No
14	Are there damages to the shelter? If so, describe. No
15	Is there seating in the shelter? <u></u> YesNo
	For how many? 2-3 people

15	Is there seating in the shelter? <u>K</u> YesNo For how many? <u>2-3 people</u>
Tr	ash Assessment
16	. What type of receptacle?
	Free-standingxAttached to shelter
17	. Are there problems with the trash receptacle and the surrounding area? -No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
19.	Where is the bus stop located?
	<u>x</u> In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
	What is the posted speed limit? 30 WPH
21.	What are the traffic controls at the nearest intersection?
	SignalStop/Yield SignNoneOther
22.	How many total lanes are on both sides of the road? Four (4)
23.	Are there potential traffic hazards? _x_YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed traffic
	No crosswalk
Lia	hting Assessment
	What type of lighting is available?
	Street light
	Coutside light of adjacent building
Lar	ndscaping Assessment
	Are there problems with landscaping around the bus stop?Yes _X_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign?Yes _K_No
27.	Are bus routes indicated on the sign?YesNo -N/A
	If yes, what routes?
28.	How is the sign installed? - N/A
	On its own pole
	On a building
	On a utility pole
	On a shelter
29.	Are there problems with the sign? N/AYes No
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor

Date June 24, 2008



Identification/Location 1. Is there a shelter? X YesNo
Type of shelter? LAMAR - NORTH Fayethe Township 2. Location (street & cross streets) Summit Park Mine + Home Dive
3. Where is the stop positioned?
_X_Nearside (before the bus crosses the intersection)
Far Side (after the bus crosses the intersection) Mid-block
At building entrance. What building?
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? X YesNo
If yes, approximately how wide? Que (1) Foot
5. What is the material of the landing area? Asphalt * Concrete Grass Dirt Gravel
Asphalt
Is it Aspnait Concrete (sidewalk) Gravel Desire Line in the Grass
7. Are there physical parriers at/on sidewalk? Yes No ~ N/A
If yes, what are they?
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
ApartmentsS/F HousingSchool _ K ShoppingBus Transfer
Office Building Park and Ride Other 9. Where is the nearest street crossing opportunity? Summit Park Dark + Home Drive (Crosswelk Facet) Are there curb cuts at the nearest interpretion? You have the perfect interpretion?
Are there curb cuts at the nearest intersection? X Yes No
If yes, how many? Thue (3)
10. Is there a companion bus stop across the street? × YesNo
11. Are there connections to other transportation services at this bus stop? Yes X No
PTI ShuttleACTA ShuttleBCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter?YesXNo
13. Could a visually impaired person identify the bus stop? X Yes No
14. Are there damages to the shelter? If so, describe. No
15. Is there seating in the shelter? <u>X</u> YesNo For how many? 2-5 people
or now many: at a prople

15	Is there seating in the shelter? <u>X</u> YesNo For how many? <u>A-3 people</u>
	ash Assessment What type of receptacle?
17.	Free-standingX_Attached to shelter Are there problems with the trash receptacle and the surrounding area? -NoTrash can fullTrash can overflowingGraffitiBus stop litteredAdjacent property littered
18.	Abandoned grocery cart Do they create a barrier to ped traffic flow?YesXNo
	fety & Security Features Where is the bus stop located? X In travel lane? Bus pull off area Paved shoulder Unpaved shoulder Off street
21.	What is the posted speed limit? 30 MPH What are the traffic controls at the nearest intersection? X SignalStop/Yield SignNoneOther How many total lanes are on both sides of the road? Four (4)
23.	Are there potential traffic hazards?
	hting Assessment What type of lighting is available?Street light
	X Outside light of adjacent building Indscaping Assessment Are there problems with landscaping around the bus stop?YesXNo Trees/bushes encroaching the area Trees/bushes encroaching the sidewalk
	Is there a bus stop sign?Yes _K_No
	Are bus routes indicated on the sign?YesNo - N/A If yes, what routes?
28.	How is the sign installed?-N/A On its own pole On a building On a utility pole
	On a shelter Are there problems with the sign?→Ν/ϒYesNoSign is in poor conditionSign position is hazardous to pedsLighting on sign is poor

Date June 24, 2008



Identification/Location
1. Is there a shelter? X YesNo
Type of shelter? LAMAR - NORTH Fayette Township Style 2. Location (street & cross streets) Summit Park Dillet Charlet Dille (opposite Home Dillet) 3. Where is the step positioned?
2. Location (street & cross streets) Sumuit Park Dille + Chauvet Dille (opposite Home Dille
5. Where is the stop positioned?
X_Nearside (before the bus crosses the intersection)
Far Side (after the bus crosses the intersection)
Mid-block
At building entrance. What building?
If yes, what are they?
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? <u>\tau Yes</u> No
If yes, approximately how wide? On (1) Fort
5. What is the material of the landing cross?
Asphalt
6. Is there a pedestrian path to/from the shelter? Yes X No
is it Asphait Concrete (sidewalk) Gravel Desire Line in the Grass
7. Are there physical parriers at/on sidewalk?Yes No _N/A
If yes, what are they?
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
ApartmentsS/F HousingSchool _X_ShoppingBus Transfer
Office Ruilding Park and Pide Office
9. Where is the nearest street crossing opportunity? Summit Park Dille + Chaovet Dille
Are there curb cuts at the nearest intersection? X Yes No
If yes, how many? Thue (3)
10. Is there a companion bus stop across the street? K Yes No
11. Are there connections to other transportation services at this bus stop? Yes 🗶 No
PTI ShuttleACTA ShuttleBCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter?Yes
13. Could a visually impaired person identify the bus stop? × Yes No
14. Are there damages to the shelter? If so, describe. No
15. Is there seating in the shelter? X Yes No
For how many? 2-3 meanle

15.	Is there seating in the shelter? <u>x</u> YesNo For how many? <u>2-3 people</u>
T	
	ash Assessment What type of receptacle?
10.	Free-standing
17.	Are there problems with the trash receptacle and the surrounding area? -No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
	Where is the bus stop located?
	K_In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
20	Off street
	What is the posted speed limit? 36 MPH What are the traffic controls at the nearest intersection?
41.	K Signal Stop/Yield Sign None Other
22.	How many total lanes are on both sides of the road? Four (4)
	Are there potential traffic hazards? <u>X</u> Yes No
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	X_High speed traffic
	No crosswalk
Liq	hting Assessment
	What type of lighting is available?
	X Street light
	Outside light of adjacent building
	dscaping Assessment
25.	Are there problems with landscaping around the bus stop?YesX_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	rmation Features
	Is there a bus stop sign? K YesNo
	Are bus routes indicated on the sign? X YesNo
	If yes, what routes? 25 A; 25 C (outraten); 28 M
28.	How is the sign installed?
	On its own pole
	On a building
	X_On a utility pole On a shelter
29	Are there problems with the sign?Yes _X No
	Sign is in poor condition
,	Sign position is hazardous to peds
	Lighting on sign is poor



Identification/Location
1. Is there a shelter? X Yes No Type of shelter? North Fayette Township Style - LANAR 2. Location (street & cross streets) Sumul Park Office + Home Depot Service Drive 3. Where is the step positioned?
Type of shelter? North Fayette Township Style- LAMAR
2. Location (street & cross streets) Summit Park Dive + Home Denot Service Dive
3. Where is the stop positioned?
X_Nearside (before the bus crosses the intersection)
Far Side (after the bus crosses the intersection)
Mid-block
At building entrance. What building?
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? X Yes No
If yes, approximately how wide? Two(z) Feet
5. What is the material of the landing area?
Asphalt & Concrete Grass Dirt Gravel
Asphalt _X_ConcreteGrassDirtGravel 6. Is there a pedestrian path to/from the shelter?Yes _XNo
Is it AsphaltConcrete (sidewalk)GravelDesire Line in the Grass
7. Are there physical barriers at/on sidewalk?YesNo-N/A
If yes, what are they?
in you, what are they:
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
ApartmentsS/F HousingSchool _X_ShoppingBus Transfer
Office Building Park and Ride Other
9. Where is the nearest street crossing opportunity? Sunnit Park Dive + Home Depot Service Dive
Are there curb cuts at the nearest intersection?Yes _x_No
If yes, how many?
10. Is there a companion bus stop across the street?YesX_No
11. Are there connections to other transportation services at this bus stop?YesX_No
PTI ShuttleACTA ShuttleBCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter?YesX No
13. Could a visually impaired person identify the bus stop? X Yes No
14. Are there damages to the shelter? If so, describe. No
15. Is there seating in the shelter? X Yes No
For how many? 2-3 people

Ir	asn Assessment
16	. What type of receptacle?
	Free-standing X_Attached to shelter
17	. Are there problems with the trash receptacle and the surrounding area? ለ ል
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
10	Abandoned grocery cart
10	Do they create a barrier to ped traffic flow?Yes _X_No
Sa	fety & Security Features
	Where is the bus stop located?
	X In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20.	What is the posted speed limit? 35 MP#
21.	What are the traffic controls at the nearest intersection?
	Signal X Stop/Yield SignNoneOther
	How many total lanes are on both sides of the road? Four (4)
23.	Are there potential traffic hazards? X YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	X High speed traffic
	_X_No crosswalk
Lio	hting Assessment
	What type of lighting is available?
	X Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
-	Are there problems with landscaping around the bus stop?Yes _X_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign?Yes _X_No
27.	Are bus routes indicated on the sign?YesNo -N/A
	If yes, what routes?
28.	How is the sign installed? - N/A
	On its own pole
	On a building
	On a utility pole
0.0	On a shelter
29.	Are there problems with the sign? Are there problems with the sign?
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



Is there a shelter?
Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street?
Connections (Trip Generators) 8. What are the primary trip generators at the stop? Apartments S/F Housing School Shopping Bus Transfer X Office Building Park and Ride Other_ 9. Where is the nearest street crossing opportunity?
Pedestrian Comfort Amenities 12. Could a person using a wheelchair fit comfortably under the shelter?YesNo 13. Could a visually impaired person identify the bus stop?XYesNo 14. Are there damages to the shelter? If so, describeNo 15. Is there seating in the shelter?XYesNo For how many? 2-3No

Tra	ash Assessment
16.	What type of receptacle?
	Free-standing X Attached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
	Where is the bus stop located?
13.	X In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20	What is the posted speed limit? 35 MPH
	What are the traffic controls at the nearest intersection?
	Signal _X _Stop/Yield SignNoneOther
22.	How many total lanes are on both sides of the road? Four (4)
	Are there potential traffic hazards? X Yes No
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	★ High speed traffic
	XNo crosswalk
-	hting Assessment
24.	What type of lighting is available?
	X Street light
	Outside light of adjacent building
	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop? X YesNo
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Infe	amortion Footunes
	ormation Features
	Is there a bus stop sign? X YesNo Are bus routes indicated on the sign? X YesNo
21.	
28	If yes, what routes? <u> </u>
20.	
	On a building
	On a utility pole On a shelter
20	The state of the s
2 3.	Are there problems with the sign?YesXNoSign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



1. Is there a shelter? K Yes No Type of shelter? LAMAR - NORTH Fayette Township Style 2. Location (street & cross streets) Summit Paux Mive & Paux Lune
2. Location (street & cross streets) Summit Track Dave a Park Land 3. Where is the stop positioned?
Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? _X_YesNo If yes, approximately how wide? _Two (z) Feet 5. What is the material of the landing area?AsphaltX_ConcreteGrassDirtGravel 6. Is there a pedestrian path to/from the shelter? _X_YesNo Is itAsphaltConcrete (sidewalk)Gravel _x_Desire Line in the Grass 7. Are there physical barriers at/on sidewalk?YesNoN/A- If yes, what are they?
Connections (Trip Generators) 8. What are the primary trip generators at the stop? Apartments S/F Housing School Shopping Bus TransferX Office Building Park and Ride Other 9. Where is the nearest street crossing opportunity? Summer Trank Delive + Park Lane Are there curb cuts at the nearest intersection? YesX No If yes, how many? 10. Is there a companion bus stop across the street? X Yes No 11. Are there connections to other transportation services at this bus stop? Yes X No PTI Shuttle ACTA Shuttle BCTA
Pedestrian Comfort Amenities 12. Could a person using a wheelchair fit comfortably under the shelter? Yes X No 13. Could a visually impaired person identify the bus stop? Yes No 14. Are there damages to the shelter? If so, describe. No 15. Is there seating in the shelter? Yes No For how many? 2-3 people.

Ira	ash Assessment
16.	What type of receptacle?
	Free-standingX_Attached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? <i>yes</i> Trash can full
	Trash can overflowing
	Graffiti
	X Bus stop littered
	Adjacent property littered
10	Abandoned grocery cart
10.	Do they create a barrier to ped traffic flow? XYesNo
Sa	fety & Security Features
	Where is the bus stop located?
	✗ In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20.	What is the posted speed limit? 35 MPH
	What are the traffic controls at the nearest intersection?
	Signal X Stop/Yield Sign None Other
22.	How many total lanes are on both sides of the road? Four (4)
	Are there potential traffic hazards? X Yes No
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	<u>⊀</u> High speed traffic
	<u>⊁</u> No crosswalk
	hting Assessment
24.	What type of lighting is available? - None
	Street light
_	Outside light of adjacent building
-	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop? <u>K</u> YesNo
	X_Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
I C.	
Married Street, or other Designation of the last of th	ormation Features
	Is there a bus stop sign?Yes _X_No
21.	Are bus routes indicated on the sign?YesNo - N/A
20	If yes, what routes?
ZO.	How is the sign installed? - N/N
	On its own pole
	On a building
	On a utility pole
20	On a shelter
25.	Are there problems with the sign? -N/AYesNo
	Sign position is bazardous to neds
	Sign position is hazardous to peds Lighting on sign is poor
	EIGHUIG OH JIGH IJ DOO

.



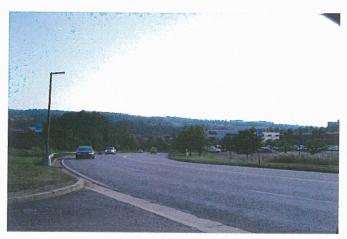
Is there a shelter? X Yes No Type of shelter? LAMAK - North Fayetle Township Style Location (street & cross streets) Summit Park Mive opposite TNC Data Center
Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? YesNo
Connections (Trip Generators) 8. What are the primary trip generators at the stop? Apartments S/F Housing School Shopping Bus TransferX
Pedestrian Comfort Amenities 12. Could a person using a wheelchair fit comfortably under the shelter?YesX_No 13. Could a visually impaired person identify the bus stop?X_YesNo 14. Are there damages to the shelter? If so, describeNo 15. Is there seating in the shelter?X_YesNo For how many? 2-3 Deeple

Ira	asn Assessment
16	What type of receptacle?
	Free-standing X Attached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? 🖊 🗸
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
19.	Where is the bus stop located?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20.	What is the posted speed limit? 35 MPH
	What are the traffic controls at the nearest intersection?
	SignalStop/Yield Sign x NoneOther
22.	How many total lanes are on both sides of the road? Four (4)
	Are there potential traffic hazards? X Yes No
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	K High speed traffic
	メ No crosswalk
Lia	hting Assessment
	What type of lighting is available?
	X Street light
	Outside light of adjacent building
Lai	ndscaping Assessment
	Are there problems with landscaping around the bus stop?Yes _X_No
20.	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
	Trees/basiles choroaciling the sidewalk
Info	ormation Features
	Is there a bus stop sign? X Yes No
	Are bus routes indicated on the sign? X Yes No
21.	
28	If yes, what routes? 26E ; 28 M How is the sign installed?
20.	_X_On its own pole
	On a building
	On a utility pole On a shelter
20	The state of the s
25.	Are there problems with the sign?Yes _X_No
	Sign position is hazardous to node
	Sign position is hazardous to peds Lighting on sign is poor
	LIGHTER OF STOLE SOUT



1. Is there a shelter?YesX_No Type of shelter? 2. Location (street & cross streets) Summit Park Mive + PNC Data Central Entrance 3. Where is the stop positioned?Nearside (before the bus crosses the intersection)Far Side (after the bus crosses the intersection)X_Mid-block
Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide? Two (2) Feet 5. What is the material of the landing area? Asphalt Concrete _X Grass Dirt Gravel 6. Is there a pedestrian path to/from the shelter? Yes No Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass 7. Are there physical barriers at/on sidewalk? Yes No - N/A If yes, what are they?
Connections (Trip Generators) 8. What are the primary trip generators at the stop? Apartments S/F Housing School Shopping Bus TransferX_ Office Building Park and Ride Other_ 9. Where is the nearest street crossing opportunity? Summet Track before 4 Track Lake Are there curb cuts at the nearest intersection? YesX_ No If yes, how many? 10. Is there a companion bus stop across the street? X Yes No 11. Are there connections to other transportation services at this bus stop? Yes No PTI Shuttle ACTA Shuttle BCTA
Pedestrian Comfort Amenities 12. Could a person using a wheelchair fit comfortably under the shelter?YesNo - No Shelter 13. Could a visually impaired person identify the bus stop?YesNo 14. Are there damages to the shelter? If so, describe. N A 15. Is there seating in the shelter?YesNo - N A For how many?

<u>l ra</u>	ash Assessment
16.	What type of receptacle? - NoN-
	Free-standing Attached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? - N/A
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
40	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
	Where is the bus stop located?
	⊁ In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20.	What is the posted speed limit? 35 MPH
21.	What are the traffic controls at the nearest intersection?
	SignalStop/Yield Sign <u>X</u> NoneOther
	How many total lanes are on both sides of the road? Four (4)
23.	Are there potential traffic hazards? X YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed traffic
	NO GIOSSWAIK
Lia	hting Assessment
	What type of lighting is available?
	K Street light
	X Outside light of adjacent building
Lar	ndscaping Assessment
	Are there problems with landscaping around the bus stop? Yes X No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
	ormation Features
	Is there a bus stop sign? X Yes No
27.	Are bus routes indicated on the sign? X YesNo
00	If yes, what routes? 26 E; 28 M
28.	How is the sign installed?
	On a building
	On a building
	On a utility pole On a shelter
20	
23.	Are there problems with the sign?Yes _X_NoSign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



ld	entification/Location
	Is there a shelter? Yes X No
	Type of shelter?
2.	Location (street & cross streets) Summit Park Dive at Valassis Entrance
3.	Where is the stop positioned?
	Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	X Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? X Yes No
	If yes, approximately how wide? One (1) Foot
5.	What is the material of the landing area?
	AsphaltConcrete _X_GrassDirtGravel
6.	Is there a pedestrian path to/from the shelter?Yes _x _No
	Is it AsphaltConcrete (sidewalk)GravelDesire Line in the Grass
1.	Are there physical barriers at/on sidewalk?YesNo
	If yes, what are they?
Cc	onnections (Trip Generators)
	What are the primary trip generators at the stop?
	ApartmentsS/F HousingSchoolShoppingBus Transfer
	X Office Building Park and Ride Other
9.	X Office Building Park and Ride Other Where is the nearest street crossing opportunity? Summit Park Dive + Cliff Mine RD.
	Are there curb cuts at the nearest intersection? Yes X No
	If yes, how many?
10.	Is there a companion bus stop across the street? X Yes No
11.	Are there connections to other transportation services at this bus stop?YesX_No
	PTI ShuttleACTA ShuttleBCTA
Pe	destrian Comfort Amenities
	Could a person using a wheelchair fit comfortably under the shelter?YesNo - N/A
13.	Could a visually impaired person identify the bus stop?Yes _X_No
14.	Are there damages to the shelter? If so, describe. N/A
15.	Is there seating in the shelter?YesNo - N/A
	For how many?

Tra	ash Assessment
16.	What type of receptacle? - NON-C
	Free-standingAttached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
10	Abandoned grocery cart
10.	Do they create a barrier to ped traffic flow?Yes _X_No
Sa	fety & Security Features
	Where is the bus stop located?
10.	X In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20.	What is the posted speed limit? 35 MPH
21.	What are the traffic controls at the nearest intersection?
	SignalStop/Yield Sign X NoneOther
	How many total lanes are on both sides of the road? Four (4)
23.	Are there potential traffic hazards? X YesNo
	Bus stop just over crest of hill
	Waiting passengers are hidden from view of approaching bus
	_ ⊭_High speed traffic ≭ No crosswalk
	NO Closswalk
Lia	hting Assessment
	What type of lighting is available?
47.	_X Street light
	Outside light of adjacent building
Lai	ndscaping Assessment
	Are there problems with landscaping around the bus stop? X YesNo
	X Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign? X Yes No
	Are bus routes indicated on the sign? X Yes No
	If yes, what routes? 26 E; 28 M
28.	How is the sign installed?
	_X_On its own pole
	On a building
	On a utility pole
	On a shelter
29.	Are there problems with the sign? Yes X No
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



ld	entification/Location
1.	Is there a shelter?YesX_No
2.	Type of shelter? Location (street & cross streets) Sumult Park brive opposite Valassis
3.	Where is the stop positioned?
	Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	X Mid-block
	At building entrance. What building?
	edestrian Access Features
4.	Is there a landing area adjacent to the curb/street? X YesNo
	If yes, approximately how wide? One (1) Foot
	What is the material of the landing area?
6	AsphaltConcrete _X_GrassDirtGravel
0.	Is there a pedestrian path to/from the shelter? Yes X No
7	Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass
1.	Are there physical barriers at/on sidewalk?YesNo-N/A If yes, what are they?
	in you, what are they:
C	onnections (Trip Generators)
8.	What are the primary trip generators at the stop?
	ApartmentsS/F HousingSchoolShoppingBus Transfer
	V 000 - D. 11.11 D. 1 I.D. 1
9.	Where is the nearest street crossing opportunity? Sumult Park Dive + Cliff Mine Pools Are there curb cuts at the nearest intersection?
	The there can cals at the hearest intersection?
10	If yes, how many?
10 11	Is there a companion bus stop across the street? X Yes No
1 1	Are there connections to other transportation services at this bus stop?Yes _X_NoPTI ShuttleACTA ShuttleBCTA
	BCTA
Pe	destrian Comfort Amenities
	Could a person using a wheelchair fit comfortably under the shelter?YesNo-N/A
13	. Could a visually impaired person identify the bus stop? Yes 🐰 No
14	Are there damages to the shelter? If so, describe. N
15	Is there seating in the shelter?YesNo -RIA
	For how many?

The real Property lies and the least lies and the lies and the lies and the least lies and the least lies and the lies and t	asn Assessment
16.	What type of receptacle? None
4	Free-standing Attached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property litteredAbandoned grocery cart
18	Do they create a barrier to ped traffic flow? Yes X No
10.	be they dieate a partier to ped traine now:
Sa	fety & Security Features
	Where is the bus stop located?
	✗ In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
	What is the posted speed limit? 35 MPH
21.	What are the traffic controls at the nearest intersection?
	SignalStop/Yield Sign _k_NoneOther
	How many total lanes are on both sides of the road? Four (4)
23.	Are there potential traffic hazards? X YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road Weiting passengers are hidden from view of approaching bus
	Waiting passengers are hidden from view of approaching busHigh speed traffic
	_x_No crosswalk
Lia	hting Assessment
	What type of lighting is available?
	X Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop? X YesNo
	X Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
26.	Is there a bus stop sign? <u>K</u> YesNo
27.	Are bus routes indicated on the sign? X YesNo
	If yes, what routes? 26 B 12 28 M
28.	How is the sign installed?
	On its own pole
	On a building
	On a utility pole
20	On a shelter
29.	Are there problems with the sign? Yes X No
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



100000000000000000000000000000000000000	entification/Location
1.	Is there a shelter? X Yes No
2	Type of shelter? LAMAR - NORTH Fayette Township Style Location (street & cross streets) Summit Park Drive + Park Lane (Mainstry Suites Side) Whore is the step positioned?
2.	Location (street & cross streets) Summit Park Drive & Park Lane (Mainstry Suites Side)
٥.	where is the stop positioned?
	Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	X Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? _X YesNo
	If yes, approximately how wide? Two (z) Feet
5.	What is the material of the landing area?
	Asphalt _ <u>X</u> ConcreteGrassDirt Gravel
6.	AsphaltConcreteGrassDirtGravel ls there a pedestrian path to/from the shelter?YesNo
	Is it AsphaltConcrete (sidewalk)Gravel 🔏 Desire Line in the Grass
7.	Are there physical barriers at/on sidewalk?YesNo - N/A
	If yes, what are they?
	onnections (Trip Generators)
8.	What are the primary trip generators at the stop?
	ApartmentsS/F HousingSchoolShoppingBus Transfer
	X Office Building Park and Ride Other
9.	Where is the nearest street crossing opportunity? Summit Park Dive There curb cuts at the nearest intersection?
	The tricle darp date at the hearest intersection: 165 _/ 140
	If yes, how many?
10	Is there a companion bus stop across the street? X YesNo
11	Are there connections to other transportation services at this bus stop? Yes X No
	PTI ShuttleACTA ShuttleBCTA
Da	destrice Constant Amounties
	Could a paragraphic and balancia fit assufactable as the conference of the conferenc
12	Could a person using a wheelchair fit comfortably under the shelter? Yes X No
1/	Could a visually impaired person identify the bus stop? K Yes No
15	Are there damages to the shelter? If so, describe. No
10	For how many? 2-3 people /
	To now many: A 3 1/2011

Ira	asn Assessment
16.	What type of receptacle? - No N-C
	Free-standingAttached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? No Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
10	Abandoned grocery cart
10.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
19.	Where is the bus stop located?
	x In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
20	Off street
	What is the posted speed limit? 35 MPH
21.	What are the traffic controls at the nearest intersection?
22	SignalStop/Yield Sign X NoneOther_ How many total lanes are on both sides of the road? Four (4)
	Are there potential traffic hazards? _K_Yes No
20.	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed traffic
	<u></u> ✓ No crosswalk
	hting Assessment
24.	What type of lighting is available? MINIMAL
	Street light
	Outside light of adjacent building
	Are there problems with lands on increasing around the horse star 2
25.	Are there problems with landscaping around the bus stop?Yes _X_NoTrees/bushes encroaching the area
	Trees/bushes encroaching the areaTrees/bushes encroaching the sidewalk
	Trees/busiles elicitateling the sidewalk
Info	ormation Features
26.	Is there a bus stop sign?Yes _X_No
27.	Are bus routes indicated on the sign?YesNo -N/A
	If yes, what routes?
28.	How is the sign installed? - N/A
	On its own pole
	On a building
	On a utility pole
20	On a shelter
29.	Are there problems with the sign?-N/AYesNo
	Sign is in poor condition
	Sign position is hazardous to peds Lighting on sign is poor
	FIGURE OF THE TOTAL STATES



Identification/Location 1. Is there a shelter?YesX_No Type of shelter?
2. Location (street & cross streets) Summit Park Drive opposite Park Lane (Mainstry Suites \$10 3. Where is the stop positioned? Nearside (before the bus crosses the intersection) Far Side (after the bus crosses the intersection) X Mid-block At building entrance. What building?
Pedestrian Access Features 4. Is there a landing area adjacent to the curb/street? X YesNo If yes, approximately how wide? (I) Foot 5. What is the material of the landing area? Asphalt Concrete Grass _X _Dirt Gravel 6. Is there a pedestrian path to/from the shelter? Yes _X _No Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass 7. Are there physical barriers at/on sidewalk? Yes No - N/A If yes, what are they?
Connections (Trip Generators) 8. What are the primary trip generators at the stop? Apartments S/F Housing School Shopping Bus TransferX_ Office Building Park and Ride Other_ 9. Where is the nearest street crossing opportunity? Summt Park Dalk Lake Are there curb cuts at the nearest intersection? Yes No If yes, how many? 10. Is there a companion bus stop across the street? X_Yes No 11. Are there connections to other transportation services at this bus stop? Yes No PTI Shuttle ACTA Shuttle BCTA
Pedestrian Comfort Amenities 12. Could a person using a wheelchair fit comfortably under the shelter?YesNo - N/A 13. Could a visually impaired person identify the bus stop?YesX No 14. Are there damages to the shelter? If so, describeN/A 15. Is there seating in the shelter?YesNo - N/A For how many?

	ash Assessment
16.	What type of receptacle? None
	Free-standingAttached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? No Trash can full
	Trash can overflowing Graffiti
	Bus stop littered
	Adjacent property littered
	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesX_No
	fety & Security Features
19.	Where is the bus stop located?
	<u>X</u> In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
20	Off street
	What is the posted speed limit? 35 MP# What are the traffic controls at the nearest intersection?
21.	Signal Stop/Yield Sign None Other
22	How many total lanes are on both sides of the road? Four (1)
	Are there potential traffic hazards? X Yes No
20.	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed traffic
	× No crosswalk
Lion	hatina Annanana
1000	hting Assessment
24.	What type of lighting is available? MINIMAL Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop?YesX_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign? X Yes No
	Are bus routes indicated on the sign? X YesNo
	If yes, what routes? 25 A
28.	How is the sign installed?
	X_On its own pole
	On a building
	On a utility pole
	On a shelter
29.	Are there problems with the sign? XYesNo
	Sign is in poor condition
	Sign position is hazardous to peds
	X_Lighting on sign is poor

Date July 24, 2008



	entification/Location
1.	Is there a shelter? X YesNo
_	Type of shelter? LAMAR - NORTH Fayette Township Style Location (street & cross streets) Park Lane at Mainstry Swites Where is the step positioned?
2.	Location (street & cross streets) Park Lake at Mainstry Suites
3.	where is the stop positioned?
	Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	_X_Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? X YesNo
	If yes, approximately how wide? Two (2) Feet
5.	What is the material of the landing area?
	Asphalt X Concrete Grass Dirt Gravel
6.	Is there a pedestrian path to/from the shelter? Yes X No
	Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass
7.	Are there physical barriers at/on sidewalk?YesNo -N/A
	If yes, what are they?
Co	onnections (Trip Generators)
	What are the primary trip generators at the stop?
	ApartmentsS/F HousingSchoolShoppingBus Transfer
	X Office Building Park and Ride X Other HoteL
9.	Where is the nearest street crossing opportunity? Summit Park Drive + Tank LANE
	Are there curb cuts at the nearest intersection? Yes X No
	If yes, how many?
10.	Is there a companion bus stop across the street? X YesNo
11.	Are there connections to other transportation services at this bus stop? Yes X No
	PTI ShuttleACTA ShuttleBCTA
Pe	destrian Comfort Amenities
	Could a person using a wheelchair fit comfortably under the shelter?Yes _X_No
13.	Could a visually impaired person identify the bus stop? X Yes No
14.	Are there damages to the shelter? If so, describe. No
15.	Is there seating in the shelter? X Yes No
	For how many? 2>3 people

	asn Assessment
16.	What type of receptacle? - None
	Free-standingAttached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
10	Abandoned grocery cart
10.	Do they create a barrier to ped traffic flow?YesX_No
Sa	fety & Security Features
	Where is the bus stop located?
	X In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20.	What is the posted speed limit? 36 NPH
21.	What are the traffic controls at the nearest intersection?
	SignalStop/Yield Sign <u>X</u> NoneOther
	How many total lanes are on both sides of the road? Two (z)
23.	Are there potential traffic hazards? <u>X</u> YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed traffic No crosswalk
	NO Closswalk
Lia	hting Assessment
	What type of lighting is available?
	X Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
-	Are there problems with landscaping around the bus stop?Yes _X_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
-	ormation Features
	Is there a bus stop sign? X YesNo
27.	Are bus routes indicated on the sign? X YesNo
	If yes, what routes? 25 A
28.	How is the sign installed?
	X_On its own pole
	On a building
	On a utility pole
20	On a shelter
29.	Are there problems with the sign? Yes X No
	Sign is in poor condition
	Sign position is hazardous to peds Lighting on sign is poor

.

Date July 24, 2008



lder	ntification/Location
1. Is	sthere a shelter? Yes X No
	Type of shelter?
2. L	ocation (street & cross streets) Park Lane opposite Main Stay Suites
3. W	where is the stop positioned:
	Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	<u>X_</u> Mid-block
_	At building entrance. What building?
Ped	estrian Access Features
4. Is	there a landing area adjacent to the curb/street? X Yes No
lf	yes, approximately how wide? Two (2) Feet
5. W	/hat is the material of the landing area?
	AsphaltConcrete <u>X</u> GrassDirtGravel
6. Is	there a pedestrian path to/from the shelter? Yes X No
ls	it AsphaltConcrete (sidewalk)GravelDesire Line in the Grass
7. A	re there physical barriers at/on sidewalk?YesNo - N/A
lf	yes, what are they?
	nections (Trip Generators)
8. W	hat are the primary trip generators at the stop?
-	ApartmentsS/F HousingSchoolShoppingBus Transfer
}	C Office BuildingPark and RideK Other Hat€L
9. W	here is the nearest street crossing opportunity? Swant Park Dille + Park Lake
Ar	re there curb cuts at the nearest intersection?Yes _X_No
lf	yes, how many?
10. I	s there a companion bus stop across the street? 🗶 Yes 💮 No
11.	Are there connections to other transportation services at this bus stop?Yes _X_No
	PTI ShuttleACTA ShuttleBCTA
Pede	estrian Comfort Amenities
12. C	Could a person using a wheelchair fit comfortably under the shelter?YesNo -N/A
13. 0	Could a visually impaired person identify the bus stop?Yes _X_No
14. A	Are there damages to the shelter? If so, describe. NA
15. Is	s there seating in the shelter?YesNo - N/A
F	or how many?

	ash Assessment
16.	What type of receptacle? None
	Free-standingAttached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
10	Abandoned grocery cart Do they create a barrier to ped traffic flow?YesX_No
10.	Do they create a partier to ped trainic flow?res
Sa	fety & Security Features
	Where is the bus stop located?
	X In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20.	What is the posted speed limit? 30 MPH
21.	What are the traffic controls at the nearest intersection?
	SignalStop/Yield Sign X NoneOther
	How many total lanes are on both sides of the road? Two (2)
23.	Are there potential traffic hazards? X YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed traffic ★ No crosswalk
	NO Closswalk
Lia	hting Assessment
	What type of lighting is available?
27.	X Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
	Are there problems with landscaping around the bus stop?Yes _X_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign? K Yes No
27.	Are bus routes indicated on the sign? *Yes No
	If yes, what routes?
28.	How is the sign installed?
	On a building
	On a utility pole
	On a shelter
29.	Are there problems with the sign?Yes _X_No
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor

Date July 24, 2008



Identification/Location
1. Is there a shelter? Yes X No
Type of shelter?
2. Location (street & cross streets) Market Place Blvo. & Montaur Run Road
3. Where is the stop positioned?
_X_Nearside (before the bus crosses the intersection)Far Side (after the bus crosses the intersection)
Mid-block
At building entrance. What building?
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? X Yes No
If yes, approximately how wide? One (1) Foot
5. What is the material of the landing area?
AsphaltConcreteGrassDirtGravel
6. Is there a pedestrian path to/from the shelter?Yes _X No
Is itAsphaltConcrete (sidewalk)GravelDesire Line in the Grass 7. Are there physical barriers at/on sidewalk?YesNo - N A
If yes, what are they?
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
ApartmentsS/F HousingSchool _X_ShoppingBus Transfer
Office Building Park and Ride Y Other Montour Trail
9. Where is the nearest street crossing opportunity? Market Place Blub. Montour Pun Rp.
Are there curb cuts at the nearest intersection?YesX_No If yes, how many?
If yes, how many? 10. Is there a companion bus stop across the street?Yes _X_No
11. Are there connections to other transportation services at this bus stop?Yes _XNo
PTI ShuttleACTA ShuttleBCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter?YesNo -N/A
13. Could a visually impaired person identify the bus stop? Yes 🗶 No
14. Are there damages to the shelter? If so, describe. NA
15. Is there seating in the shelter?YesNoNA For how many?
· · · · · · · · · · · · · · · · · · ·

IL	ash Assessment
16	. What type of receptacle? Non-
	Free-standingAttached to shelter
17	Are there problems with the trash receptacle and the surrounding area? No
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property litteredAbandoned grocery cart
18	Do they create a barrier to ped traffic flow?YesNo
10.	be they dicate a pathor to ped traine how:1es10
Sa	fety & Security Features
	Where is the bus stop located?
	✗ In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
	What is the posted speed limit? 35 MPH
21.	What are the traffic controls at the nearest intersection?
00	X SignalStop/Yield SignNoneOther
	How many total lanes are on both sides of the road? Five (s)
23.	Are there potential traffic hazards?No
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road Waiting passangers are hidden from view of approaching hus
	Waiting passengers are hidden from view of approaching bus High speed traffic
	× No crosswalk
	. To di obolitani
Lig	hting Assessment
	What type of lighting is available?
	Street light
	X Outside light of adjacent building
Lar	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop? X YesNo
	X_Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
	ormation Features
	Is there a bus stop sign? X Yes No
27.	Are bus routes indicated on the sign? X YesNo
20	If yes, what routes?
ZO.	How is the sign installed?
	On a building
	On a building
	On a utility pole On a shelter
29	Are there problems with the sign?Yes _X_No
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor
	U U I

Date ducust 19, 2008



Identification/Location
1. Is there a shelter? X Yes No
Type of shelter? Port Authority - Park and Rise Style (3 Shelters)
2. Location (street & cross streets) University Boulevard Park and Ride (University Blvp + Portva 3. Where is the stop positioned? In the Park and Place LOT
Nearside (before the bus crosses the intersection)
Far Side (after the bus crosses the intersection)
Mid-block
At building entrance. What building?
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? X Yes No
If yes, approximately how wide? Three (3) Feet
5. What is the material of the landing area?
AsphaltX_ConcreteGrassDirtGravel
6. Is there a pedestrian path to/from the shelter? X Yes No
Is it Asphalt _X_ Concrete (sidewalk) Gravel Desire Line in the Grass
7. Are there physical barriers at/on sidewalk?Yes _x No
If yes, what are they?
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
ApartmentsS/F HousingSchoolShoppingBus Transfer
Office Building X Park and Ride Other
9. Where is the nearest street crossing opportunity? University Blub. + Portvue
Are there curb cuts at the nearest intersection? Yes No
If yes, how many?
10. Is there a companion bus stop across the street?YesX_No
11. Are there connections to other transportation services at this bus stop?Yes _XNo
PTI ShuttleACTA ShuttleBCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter? X Yes No
13. Could a visually impaired person identify the bus stop? X Yes No
14. Are there damages to the shelter? If so, describe. No

15	Is there seating in the shelter? X YesNo For how many? 4-6 people per steller.
	ash Assessment What type of receptacle? X Free standing Attached to shelter
17.	X Free-standing Attached to shelter Are there problems with the trash receptacle and the surrounding area?Trash can fullTrash can overflowingGraffitiBus stop litteredAdjacent property litteredAbandoned grocery cart
18.	Do they create a barrier to ped traffic flow?Yes _X_No
19.	## Security Features Where is the bus stop located? In travel lane?Bus pull off areaPaved shoulderUnpaved shoulderVoff street What is the posted speed limit? IS MPH
21.	What are the traffic controls at the nearest intersection?
	X SignalStop/Yield SignNoneOther
	hting Assessment What type of lighting is available? X Street light Outside light of adjacent building
	Are there problems with landscaping around the bus stop?YesX_NoTrees/bushes encroaching the areaTrees/bushes encroaching the sidewalk
	ormation Features
	Is there a bus stop sign?Yes _X_No Are bus routes indicated on the sign?YesNo-N/A If yes, what routes?
	How is the sign installed? - NA On its own pole On a building On a utility pole On a shelter
29.	Are there problems with the sign? NAYesNoSign is in poor conditionSign position is hazardous to pedsLighting on sign is poor



<u>Identification/Location</u>	
1. Is there a shelter? Yes X No	
Type of shelter?	
2. Location (street & cross streets) University Blub. + Bear	ver Grade Road
3. Where is the stop positioned?	
Nearside (before the bus crosses the intersection)	
Far Side (after the bus crosses the intersection)	
Mid-block	
At building entrance. What building?	
Pedestrian Access Features	
4. Is there a landing area adjacent to the curb/street? X Yes	No
If yes, approximately how wide? One (1) Foot	
5. What is the material of the landing area?	
AsphaltConcrete X_GrassDirtG	Gravel
6. Is there a pedestrian path to/from the shelter? Yes X	No
Is it AsphaltConcrete (sidewalk) Gravel	Desire Line in the Grass
7. Are there physical barriers at/on sidewalk?YesNo	- N/A
If yes, what are they?	ATT I
Connections (Trip Consectors)	
Connections (Trip Generators) 8. What are the primary trip generators at the stop?	
Apartments S/E Housing Cohool V Chaming	D. T. T.
ApartmentsS/F HousingSchool _X_Shopping Office Building Park and Ride Other	
9. Where is the nearest street crossing opportunity? University 1	21up + Person Grane Pr
Are there curb cuts at the nearest intersection?Yes	No. Beaver Grade -D.
If yes, how many?	_110
10. Is there a companion bus stop across the street?Yes	X No
11. Are there connections to other transportation services at this	hus ston? Ves X No
PTI ShuttleACTA Shuttle BCTA	<u> </u>
Pedestrian Comfort Amenities	
12. Could a person using a wheelchair fit comfortably under the s	helter? Yes No-N/A
13. Could a visually impaired person identify the bus stop?Y	es X No
14. Are there damages to the shelter? If so, describe.	

15. Is there seating in the shelter?YesNo -N/A For how many?
Trash Assessment
16. What type of receptacle? - N/A
Free-standing Attached to shelter
17. Are there problems with the trash receptacle and the surrounding area?
Trash can full
Trash can overflowing
Graffiti
Bus stop littered
Adjacent property littered
Abandoned grocery cart
18. Do they create a barrier to ped traffic flow?YesNo
Safety & Security Features
19. Where is the bus stop located?
<u>≭</u> In travel lane?
Bus pull off area
Paved shoulder
Unpaved shoulder Off street
20. What is the posted speed limit? 35 MPH
21. What are the traffic controls at the nearest intersection?
X Signal Stop/Yield Sign None Other
22. How many total lanes are on both sides of the road? Five (5)
23. Are there potential traffic hazards? X YesNo
Bus stop just over crest of hill
Bus stop just beyond curve in the road
Waiting passengers are hidden from view of approaching bus
_X_High speed traffic No crosswalk
IVO CIOSSWAIK
Lighting Assessment
24. What type of lighting is available?
X Street light
X Outside light of adjacent building
Landscaping Assessment
25. Are there problems with landscaping around the bus stop?YesX_No
Trees/bushes encroaching the areaTrees/bushes encroaching the sidewalk
Trees/busites effortacting the sidewark
Information Features
26. Is there a bus stop sign? X YesNo
27. Are bus routes indicated on the sign?Yes _X_No
If yes, what routes?
28. How is the sign installed?
On its own pole On a building
On a utility pole
On a shelter
29. Are there problems with the sign? X YesNo
Sign is in poor condition
X Sign position is hazardous to peds
Lighting on sign is poor



	entification/Location Is there a shelter?YesX_No
2. 3.	Type of shelter? Location (street & cross streets) University Blvb. + Campus Mive (RMU - Inhound) Where is the stop positioned? —Nearside (before the bus crosses the intersection) —Far Side (after the bus crosses the intersection) X Mid-block —At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? X Yes No
5	If yes, approximately how wide? Two (2) Fact What is the material of the landing area?
J.	AsphaltX_ConcreteGrassDirtGravel
6.	io there a pedestrian path tomorn the sheller (168 M)
	Is it Asphalt X Concrete (sidewalk) Gravel Desire Line in the Grass
1.	Are there physical barriers at/on sidewalk?Yes _X_No If yes, what are they?
	n you, what are they :
Cc	onnections (Trip Generators)
	What are the primary trip generators at the stop? ApartmentsS/F Housing SchoolShoppingBus Transfer Office Building Park and Ride Other
	Office BuildingPark and RideOther
10.	Is there a companion bus stop across the street?Yes _X_No
11.	Are there connections to other transportation services at this bus stop?YesX_NoPTI ShuttleACTA ShuttleBCTA
Pe	destrian Comfort Amenities
12.	Could a person using a wheelchair fit comfortably under the shelter?-MA Yes No
13.	Could a visually impaired person identify the bus stop? Yes No
14.	Are there damages to the shelter? If so, describe.

15.	Is there seating in the shelter?YesNo -N/A For how many?
Nages	
ASSESSMENT OF THE PARTY OF	ash Assessment
10.	What type of receptacle? N\A
17	Free-standingAttached to shelter Are there problems with the trash receptacle and the surrounding area?
11.	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesNo
Sa	fety & Security Features
19.	Where is the bus stop located?
	X In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
	What is the posted speed limit? 25 MPH
21.	What are the traffic controls at the nearest intersection?
22	X Signal Stop/Yield Sign None Other
	How many total lanes are on both sides of the road? Two (>) Are there potential traffic hazards?Yes No
20.	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	High speed traffic
	No crosswalk
Lia	hting Assessment
	What type of lighting is available?
	X Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop?YesX_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign? X YesNo
27.	Are bus routes indicated on the sign?YesX_No
	If yes, what routes?
28.	How is the sign installed?
	On its own pole
	On a building
20	On a shelter Are there problems with the sign? Yes X No
2 3.	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



ld	entification/Location
1.	Is there a shelter? Yes X No
2.	Location (street & cross streets) Campus Dive + Pennsylvania Que. (RMU - JuBaura)
3 .	vynere is the stop positioned?
	X Nearside (before the bus crosses the intersection)
	Far Side (after the bus crosses the intersection)
	Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
4.	Is there a landing area adjacent to the curb/street? X YesNo
	If yes, approximately how wide? Two (2) Feet
5.	What is the material of the landing area?
	Asphalt Concrete X Grass Dirt Gravel
Ό.	is there a pedestrian path to/from the shelter? X Yes No
	Is it AsphaltX Concrete (sidewalk) Gravel Desire Line in the Grass
1.	Are there physical barriers at/on sidewalk?Yes
	If yes, what are they?
<u> </u>	manadiana (T.)
$\frac{C}{C}$	onnections (Trip Generators)
Ö.	What are the primary trip generators at the stop?
	ApartmentsS/F Housing _X_SchoolShoppingBus Transfer
ο	Office BuildingPark and RideOther Where is the nearest street crossing opportunity? <u>Campus Dive + Pennsulvania</u> Ave.
٥.	Are there curb cuts at the nearest intersection?Yes _X_No
	If yes, how many?
	Is there a companion bus stop across the street?YesXNo
11.	Are there connections to other transportation services at this bus stop?YesX No
	PTI ShuttleACTA ShuttleBCTA
	BOTA
Pe	destrian Comfort Amenities
	Could a person using a wheelchair fit comfortably under the shelter?YesNo -N/A
13.	Could a visually impaired person identify the bus stop?Yes _X_No
14.	Are there damages to the shelter? If so, describe.

15.	Is there seating in the shelter?YesNo -N/A For how many?
<u>Tra</u>	What type of receptacle? - N A Free-standing Attached to shelter
17.	Are there problems with the trash receptacle and the surrounding area? - N/A Trash can fullTrash can overflowingGraffitiBus stop litteredAdjacent property litteredAbandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesNo
	Mere is the bus stop located? ✓ In travel lane? Bus pull off area Paved shoulder Unpaved shoulder
20.	Off street What is the posted speed limit? 25 MPH
21.	What are the traffic controls at the nearest intersection?
	Signal X Stop/Yield Sign None Other How many total lanes are on both sides of the road? Two (2) Are there potential traffic hazards? Yes X No Bus stop just over crest of hill Bus stop just beyond curve in the road Waiting passengers are hidden from view of approaching bus High speed traffic No crosswalk
	hting Assessment What type of lighting is available?
	X Street light
Lar	Outside light of adjacent building Idscaping Assessment
	Are there problems with landscaping around the bus stop?Yes _X_NoTrees/bushes encroaching the areaTrees/bushes encroaching the sidewalk
	ormation Features
	Is there a bus stop sign? X YesNo Are bus routes indicated on the sign?YesX No
21.	If yes, what routes?
28.	How is the sign installed? On its own pole On a building X On a utility pole
29.	On a shelter Are there problems with the sign?YesX_NoSign is in poor conditionSign position is hazardous to pedsLighting on sign is poor



<u>Identification/Location</u>
1. Is there a shelter? Yes X No
Type of shelter?
2. Location (street & cross streets) Wassey Drive + Campus Drive
3. Where is the stop positioned?
Nearside (before the bus crosses the intersection)
Far Side (after the bus crosses the intersection)
_X_Mid-block
At building entrance. What building?
Dedoctrion Access Factures
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? X YesNo
If yes, approximately how wide? Two(2) Fee+ 5. What is the material of the landing area?
Asphalt
AsphaltX_ConcreteGrassDirtGravel 6. Is there a pedestrian path to/from the shelter?XYesNo
Is it Asphalt _X_Concrete (sidewalk) Gravel Desire Line in the Grass
7. Are there physical barriers at/on sidewalk?Yes _X_No
If yes, what are they?
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
Apartments S/F Housing / School Shopping Pus Transfer
Office BuildingPark and RideOther
9. Where is the nearest street crossing opportunity? Campus Dure + Massey Mine
Are there curb cuts at the hearest intersection?Yes X No
If yes, how many?
10. Is there a companion bus stop across the street?Yes _X_No
11. Are there connections to other transportation services at this bus stop? Yes X No
PTI ShuttleACTA ShuttleBCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter?YesNo - N/A
13. Could a visually impaired person identify the bus stop? Yes X No
14. Are there damages to the shelter? If so, describe. NA

For how many?
Trash Assessment
16. What type of receptacle? - N A Free-standingAttached to shelter
17. Are there problems with the trash receptacle and the surrounding area?
Trash can full
Trash can overflowing
Graffiti
Bus stop littered
Adjacent property littered
Abandoned grocery cart
18. Do they create a barrier to ped traffic flow?YesNo
Safety & Security Features
19. Where is the bus stop located?
χ_In travel lane?
Bus pull off area
Paved shoulder
Unpaved shoulder
Off street
20. What is the posted speed limit? 25 MPH 21. What are the traffic controls at the nearest intersection?
SignalStop/Yield Sign _X_NoneOther
22. How many total lanes are on both sides of the road? \(\frac{1}{2}\)
23. Are there potential traffic hazards?Yes _X_No
Bus stop just over crest of hill
Bus stop just beyond curve in the road
Waiting passengers are hidden from view of approaching bus
High speed traffic
No crosswalk
Lighting Assessment
24. What type of lighting is available?
X Street light
Outside light of adjacent building
Landscaping Assessment
25. Are there problems with landscaping around the bus stop?YesX_No
Trees/bushes encroaching the area
Trees/bushes encroaching the sidewalk
Information Features
26. Is there a bus stop sign? X Yes No
27. Are bus routes indicated on the sign?Yes _X No
If yes, what routes?
28. How is the sign installed?
X On its own pole
On a building
On a utility pole
On a shelter 29. Are there problems with the sign? —Yes X No
Sign is in poor condition
Sign is in pool conditionSign position is hazardous to peds
Lighting on sign is poor
and the contraction of the contr

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1 A

Date <u>August 19, 2008</u>



Id	entification/Location
1.	Is there a shelter?Yes _X_No
2	Type of shelter?
3	Location (street & cross streets) University Blub. 4 Stoops Ferry Where is the stop positioned?
Ο.	Nearside (before the bus crosses the intersection)
	∠ Far Side (after the bus crosses the intersection)
	Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? X Yes No.
	If yes, approximately how wide? Two (=) Feet
5.	What is the material of the landing area?
0	AsphaltConcreteX_GrassDirtGravel Is there a pedestrian path to/from the shelter?YesX_No
Ο.	Is there a pedestrian path to/from the shelter? Yes X No
7	Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass
١.	Are there physical barriers at/on sidewalk?YesNo If yes, what are they?
	you, what are they:
Co	onnections (Trip Generators)
	What are the primary trip generators at the stop?
	Apartments S/F Housing School V Shapping Bus Transfer
	Office BuildingPark and RideOtherWhere is the nearest street crossing opportunity? University Blue + Straps Ferry
9.	Where is the nearest street crossing opportunity? University Blub. + Strops Ferry
	Are there carb cats at the hearest intersection? Yes 1X No
10	If yes, how many?
10. 11	Is there a companion bus stop across the street? Yes X No
	Are there connections to other transportation services at this bus stop? Yes X No PTI Shuttle ACTA Shuttle BCTA
	BOTA
Pe	destrian Comfort Amenities
	Could a person using a wheelchair fit comfortably under the shelter?YesNo-N/A
13.	Could a visually impaired person identify the bus stop? Yes X No
14.	Are there damages to the shelter? If so, describe. NA

15.	For how many?
	Assessment What type of receptacle? N/A
17.	Free-standing Attached to shelter Are there problems with the trash receptacle and the surrounding area? Track on full
	Trash can fullTrash can overflowingGraffiti
	Bus stop litteredAdjacent property littered
18.	Abandoned grocery cart Do they create a barrier to ped traffic flow?YesNo
	fety & Security Features Where is the bus stop located? X In travel lane? Bus pull off area Paved shoulder Unpaved shoulder Off street
	What is the posted speed limit? 35 MPH What are the traffic controls at the nearest intersection?
	X Signal Stop/Yield Sign None Other How many total lanes are on both sides of the road? Four (4)
23.	Are there potential traffic hazards? X YesNoBus stop just over crest of hillBus stop just beyond curve in the roadWaiting passengers are hidden from view of approaching bus _X High speed trafficNo crosswalk
	hting Assessment What type of lighting is available?
	X Street light Outside light of adjacent building
	ndscaping Assessment Are there problems with landscaping around the bus stop?
20.	X Trees/bushes encroaching the area Trees/bushes encroaching the sidewalk
-	ormation Features
	Is there a bus stop sign? X YesNo Are bus routes indicated on the sign? X YesNo
28.	If yes, what routes? 2 C How is the sign installed?
	On its own poleOn a buildingOn a utility pole
29.	On a shelter Are there problems with the sign? X YesNoSign is in poor condition X Sign position is hazardous to pedsLighting on sign is poor



Identification/Location
1. Is there a shelter?Yes _X_No Type of shelter?
2. Location (street & cross streets) University Blub Brodhead Road
3. Wriere is the stop positioned?
_X_Nearside (before the bus crosses the intersection)
Far Side (after the bus crosses the intersection)Mid-block
At building entrance. What building?
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? X Yes No
If yes, approximately how wide? Two (z) Feet
5. What is the material of the landing area?
AsphaltConcrete _X_ GrassDirtGravel 6. Is there a pedestrian path to/from the shelter?Yes _X_No
Is it Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass
7. Are there physical parriers at/on sidewalk?Yes No-N/A
If yes, what are they?
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
Apartments S/F Housing School X Shapping Bus Transfer
Office BuildingPark and RideOther
9. Where is the nearest street crossing opportunity? University Blub Brodhead to.
Are there curb cuts at the nearest intersection? Yes No If yes, how many?
10. Is there a companion bus stop across the street?YesX_No
11. Are there connections to other transportation services at this bus stop?YesX_No
PTI ShuttleACTA ShuttleBCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter?YesNo-N/A
13. Could a visually impaired person identify the bus stop? Yes X No
14. Are there damages to the shelter? If so, describe.

15.	Is there seating in the shelter?YesNo - N/A For how many?
T	and Annual and
	nsh Assessment
16.	What type of receptacle? - N/A
4 -7	Free-standingAttached to shelter
17.	Are there problems with the trash receptacle and the surrounding area?
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
40	Abandoned grocery cart
18.	Do they create a barrier to ped traffic flow?YesNo
Saf	fety & Security Features
19.	Where is the bus stop located?
	χ_In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
	What is the posted speed limit? 35 MPH
21.	What are the traffic controls at the nearest intersection?
00	SignalStop/Yield SignNoneOther
	How many total lanes are on both sides of the road?
23.	Are there potential traffic hazards? X YesNo
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching busX High speed traffic
	No crosswalk
	IVO GIOSSWAIIX
Liq	hting Assessment
	What type of lighting is available?
	X Street light
	Outside light of adjacent building
Lan	dscaping Assessment
25.	Are there problems with landscaping around the bus stop? Yes X No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
	ermation Features
	Is there a bus stop sign? XYesNo
27.	Are bus routes indicated on the sign? X YesNo
20	If yes, what routes? 25 A
28.	How is the sign installed?
	On its own pole
	On a building
	✓ On a utility pole
20	On a shelter
29.	Are there problems with the sign? Yes X No
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



ld	entification/Location
1.	Is there a shelter? Yes X No
2	Type of shelter?
2.	Location (street & cross streets) University Blub. + Moon Clinton Ro.
٥.	Where is the stop positioned?
	_X_Nearside (before the bus crosses the intersection)Far Side (after the bus crosses the intersection)
	Mid-block
	At building entrance. What building?
Pe	edestrian Access Features
	Is there a landing area adjacent to the curb/street? X Yes No
	If yes, approximately how wide? Two (2) Fee +
5.	What is the material of the landing area?
	AsphaltConcrete X_ GrassDirtGravel Is there a pedestrian path to/from the shelter?YesXNo
6.	Is there a pedestrian path to/from the shelter? Yes X No
	Is it AsphaltConcrete (sidewalk)GravelDesire Line in the Grass
7.	Are there physical parriers at/on sidewalk?Yes No -N(A
	If yes, what are they?
C	annections (Trin Congretors)
8	wnnections (Trip Generators) What are the primary trip generators at the stop?
Ο.	Anartments S/E Housing School V Chambing Day Touris
	ApartmentsS/F HousingSchool X_ShoppingBus Transfer
9.	Office BuildingPark and RideOther
	Are there curb cuts at the nearest intersection?Yes No
	If yes, how many?
10.	Is there a companion bus stop across the street?Yes _X_No
11.	Are there connections to other transportation services at this bus stop?Yes _X_ No
	PTI ShuttleACTA ShuttleBCTA
	destrian Comfort Amenities
12.	Could a person using a wheelchair fit comfortably under the shelter?YesNo -N/A
13. 11	Could a visually impaired person identify the bus stop? Yes X No
14.	Are there damages to the shelter? If so, describe.

15.	Is there seating in the shelter?YesNo - N IF
	For how many?
_	
	ash Assessment
16.	What type of receptacle? - N A
47	Free-standingAttached to shelter
17.	Are there problems with the trash receptacle and the surrounding area?
	Trash can full
	Trash can overflowing Graffiti
	Bus stop littered
	Adjacent property litteredAbandoned grocery cart
18	Do they create a barrier to ped traffic flow? Yes No
10.	be they create a partier to ped traffic flow?140
Sa	fety & Security Features
	Where is the bus stop located?
15.	X_In travel lane?
	Bus pull off area
	Paved shoulder
	Unpaved shoulder
	Off street
20.	What is the posted speed limit? 35 MPH
	What are the traffic controls at the nearest intersection?
	X Signal Stop/Yield Sign None Other
22.	How many total lanes are on both sides of the road? Four (4)
	Are there potential traffic hazards? X Yes No
	Bus stop just over crest of hill
	Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	X High speed traffic
	No crosswalk
	hting Assessment
24.	What type of lighting is available?
	_X_Street light
	Outside light of adjacent building
	ndscaping Assessment
25.	Are there problems with landscaping around the bus stop?YesXNo
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
l	
	ormation Features
	Is there a bus stop sign? X Yes No
21.	Are bus routes indicated on the sign? X YesNo
20	If yes, what routes? 25 A
20.	How is the sign installed?
	On its own poleOn a building
	On a utility pole
	On a shelter
29	Are there problems with the sign? X_YesNo
	Sign is in poor condition
	X Sign position is hazardous to peds
	Lighting on sign is poor



<u>Identification/Location</u>
1. Is there a shelter?Yes _XNo
Type of shelter?
2. Location (street & cross streets) University Blub, @ Double Tree Horse Entrance
5. Where is the stop positioned?
Nearside (before the bus crosses the intersection)Far Side (after the bus crosses the intersection)
X Mid-block
At building entrance. What building?
Pedestrian Access Features
4. Is there a landing area adjacent to the curb/street? X YesNo
If yes, approximately how wide? (1) For t
5. What is the material of the landing area?
AsphaltConcreteX_GrassDirtGravel
o. Is there a pedestrian path to/from the shelter? X Yes No (Should on Rean)
Is itX Asphalt Concrete (sidewalk) Gravel Desire Line in the Grass
7. Are there physical barriers at/on sidewalk?YesNo N/A
If yes, what are they?
Connections (Trip Generators)
8. What are the primary trip generators at the stop?
ApartmentsS/F HousingSchool _X_ShoppingBus Transfer
Office BuildingPark and Ride X Other HoteL
9. Where is the hearest street crossing opportunity?
Are there curb cuts at the nearest intersection?YesNo
If yes, how many?
10. Is there a companion bus stop across the street?Yes _X_No
11. Are there connections to other transportation services at this bus stop?Yes _X_NoPTI ShuttleACTA ShuttleBCTA
AOTA STIULLEBCTA
Pedestrian Comfort Amenities
12. Could a person using a wheelchair fit comfortably under the shelter?YesNo - N/
13. Could a visually impaired person identify the bus stop? Yes Y No
14. Are there damages to the shelter? If so, describe.

15	Is there seating in the shelter?YesNo -N/A For how many?
7	
NAME OF TAXABLE PARTY.	<u>ash Assessment</u> . What type of receptacle?- <i>∾I</i> A
10	Free-standingAttached to shelter
17	Are there problems with the trash receptacle and the surrounding area?
	Trash can full
	Trash can overflowing
	Graffiti
	Bus stop littered
	Adjacent property littered
18	Abandoned grocery cart
10	Do they create a barrier to ped traffic flow?YesNo
Sa	fety & Security Features
19.	Where is the bus stop located?
	<u></u>
	Bus pull off area
	Paved shoulderUnpaved shoulder
	Off street
20.	What is the posted speed limit? 35 MPH
	What are the traffic controls at the nearest intersection?
	SignalStop/Yield SignNoneOther
22.	How many total lanes are on both sides of the road? Four L4)
23.	Are there potential traffic hazards? X Yes No
	Bus stop just over crest of hill Bus stop just beyond curve in the road
	Waiting passengers are hidden from view of approaching bus
	∠ High speed traffic
	No crosswalk
Lia	bting Accessory
	<u>Inting Assessment</u> What type of lighting is available?
24.	_X_Street light
	Outside light of adjacent building
Lar	ndscaping Assessment
	Are there problems with landscaping around the bus stop?Yes _X_No
	Trees/bushes encroaching the area
	Trees/bushes encroaching the sidewalk
Info	ormation Features
	Is there a bus stop sign? X Yes No
27.	Are bus routes indicated on the sign?Yes _X_No
	If yes, what routes?
28.	How is the sign installed?
	On a buildingOn a utility pole
	On a shelter
29.	Are there problems with the sign?YesXNo
	Sign is in poor condition
	Sign position is hazardous to peds
	Lighting on sign is poor



Appendix K

Bus stop Survey



Safety and Security at Suburban Bus Stops Study Bus Stop Survey

1.	Did you walk or drive to your bus stop today?DriveWalk
2.	How often do you take the bus?
	5 days a week
	A few times a week
	Once a week
	Less than once a week
3.	Where are you coming from/going to? (Indicate coming from or coming to.)
	Work
	School
	Home
	Transferring from another bus
	Other
4.	Do you feel safe walking to the bus stop? Yes No
	If no, what makes you feel unsafe?
	Threat of crime
	Fast-moving traffic, no sidewalks
5.	When you are waiting at the stop, do any of the following make you feel uncomfortable?
	Fast-moving traffic
	Short distance from the stop to moving traffic
	Other people waiting for the bus
	People walking by
6.	Do you prefer to wait under the shelter or in the open?Shelter Open
	Why

7.	Do you prefer to sit or stand?	Sit	Stand	t		
8.	Are there usually enough seats in the shelter to accommodate those who want to sit?					
	Yes No					
9.	Can you see the bus coming if you are sitt	ing?	Yes	_ No		
	If not, why not?					
10.	. Do you prefer to wait at a stop					
	With a shelter					
	Without a shelter					
	Makes no difference					
11.	. How important would the following improv (use very important, neutral, not importan	,	ou?			
•	Bus schedules at the bus stop					
_	Information on when the next bus	is coming				
	Lighting					
	An available seat					
_	Move the bus stop back from the r	oad				
12.	. Is this (where you wait for the bus) a good	d location for a	bus stop? Yes	No	_	
Wh	ny?					
13.	. What is the most important improvement that could be made to make your time waiting at the bus stop better?					
14.	. What is the most important improvement traveling to the bus stop better?	that could be m	ade to make you	ur time		



Appendix L

Bus Stop Survey Results



ACTA Safety and Security at Suburban Bus Stops Study

Bus Stop Survey Results

1. Did you walk or drive to your bus stop today?

78% of respondents **drove** to their stop **22%** of respondents **walked** to their stop

2. How often do you take the bus?

66% of respondents take the bus 5 days a week 28% of respondents take the bus a few days a week 6% of respondents take the bus less than once a week

3. Where are you coming from/going to? (Indicate coming from or going to)

Work: **56%** of respondents indicated they are **going to work**

3% of respondents indicated they are coming from work

School: 41% of respondents indicated they are going to school

3% of respondents indicated they are coming from school

Home: 34% of respondents indicated they are coming from home

Transferring: 6% of respondents indicated they are going to transfer to another

bus

9% of respondents indicated they are **coming from a transfer**

from another bus

Other: 6% of respondents indicated they are going to an "Other" destination

4. Do you feel safe walking to the bus stop?

72% of respondents indicated that they **do feel safe** walking to the bus stop 22% of respondents indicated that they **do not feel** safe walking to the bus stop 6% of respondents did not answer the guestion

If no, what makes you feel unsafe?

29% of respondents indicated the **threat of crime** made them feel unsafe 86% of respondents indicated the fast-moving traffic, no sidewalks made them feel unsafe

5. When you are waiting at the stop, do any of the following make you feel uncomfortable?

56% of respondents indicated fast-moving traffic makes them uncomfortable

50% of respondents indicated the **short distance from the stop to moving traffic** makes them uncomfortable

19% of respondents indicated other people waiting for the bus makes them uncomfortable

25% of respondents indicated **people walking by** makes them uncomfortable

50% of respondents did not answer the question

6. Do you prefer to wait under the shelter or in the open?

72% of respondents prefer to wait under the shelter22% of respondents prefer to wait in the open6% of respondents don't have a preference

Why?

78% of respondents indicated the weather as a reason to wait under the shelter

6% of respondents indicated that it is safer to wait under the shelter

14% of respondents wait in the open because they smoke

14% of respondents wait in the open because they like the open

29% of respondents wait in the open so the bus driver sees them

14% of respondents wait in the open so they can see the bus

14% of respondents wait in the open because they have their own space

7. Do you prefer to sit or stand?

53% of respondents prefer to **sit**

41% of respondents prefer to stand

6% of respondents have no preference

8. Are there usually enough seats in the shelter to accommodate those who want to sit?

84% of respondents indicated that there are not enough seats

10% of respondents indicated that there are enough seats

6% of respondents did not answer the question

9. Can you see the bus coming if you are sitting?

66% of respondents indicated that they can see the bus if they are sitting

28% of respondents indicated that they can not see the bus if they are sitting

6% of respondents did not answer the question

If no, why not?

13% of respondents indicated that the shelter blocks their view

25% of respondents indicated that the people around the shelter blocks their view

13% of respondents indicated that there is a limited view due to the hill

37% of respondents indicated that there is a limited view

12% of respondents indicated that the view is blocked due to the location of the shelter on a turn

10. Do you prefer to wait at a stop...?

81% of respondents indicated they prefer to wait at a stop with a shelter
19% of respondents indicated it makes no difference if they wait at a stop with or without a shelter

11. How important would the following improvements be to you? (use very important, neutral, not important)

Bus schedules at the bus stop: 72% indicated very important

14% indicated neutral14% indicated not important

Information on when the next bus is coming: 79% indicated very important

14% indicated neutral7% indicated not important

Lighting 63% indicated very important

26% indicated neutral

11% indicated not important

An available seat: 46% indicated very important

25% indicated neutral 29% indicated not important

Move the bus stop back from the road: 23% indicated very important

41% indicated neutral 36% indicated not important

12. Is this (where you wait for the bus) a good location for a bus stop?

94% of respondents indicated that **it is** a good location for a bus stop **6%** of respondents indicated that **it is not** a good location for a bus stop

Why?

- It (my downtown stop) is a central area to many buildings.
- It is a convenient spot, but it is just inches away from a constant, swift flow of traffic.
- It's easy to access, has a parking lot, but in the winter roads are icy.
- Large parking area
- Close to work/home
- A lot of transfers occur here.
- There are no current painted crosswalks for anyone to cross in front of IKEA or the Iron and Glass Bank. I have spoken to the Robinson Commissioners meeting in May 2007 and here it is 17 months later and nothing has yet been done.
- · It's doesn't make a difference.
- Because a lot of work people travel from the stop.
- · It is heavily travelled and easily accessible.
- It is in a convenient area with available parking.
- You can park your car there.
- · Parking available
- IKEA parking lot
- Lots of parking, out of shops way, central location.
- · Ease of access.
- Near retail shops. Easy access to interstate, plenty of parking.
- There is a parking lot and it is close to my home.
- Near my home.
- It's convenient for people who work in the area and you can see the bus early enough to gather your stuff.
- Good place for parking and very populated with people at all times of day.

13. What is the most important improvement that could be made to make your time waiting at the bus stop better?

- Bus to be on time.
- More room there are a lot of commuters on this bus.
- Knowing when the bus is coming if it's late.
- · Moving the bus stop back from the road so that a line could be formed for those waiting.
- Bus should come on time.
- · Make it not as cold in the winter!
- Maybe more seats? I'm young but I worry about older people standing. A bigger shelter would be nice in the winter though!
- Better lighting at night / clean area at bus stops and a crosswalk at all shelter/bus stops.
- · Knowing when the next bus arrives.
- · Available times of next bus.
- Information on when the next bus is coming!! TV or music to kill time.

- Seating
- Move shelter back from the road and grad the ground better, very rough, rocky and sloped as it is.
- · Next bus info.
- · More pavement instead of grass and gravel.
- Maybe more 28X's at frequent times.
- The 28X should pick up from the Robinson stop earlier on weekdays.
- · Bus schedule
- A bus schedule at the bus stop.
- Install a current time clock by IKEA. The one in the Town Center is not always accurate.
- Cleaner shelters; heated and/or cooled shelters.
- No smoking in the shelter. Poor drainage, when raining heavy you get soaked in the shelter (cars splash).
- Lighting, at night the station is really dark and I've had people follow me through the parking lot.
- More buses
- It would be ideal if the 28X (IKEA) stop could be moved back a couple feet.
- Maybe some way to let people know if buses are going to be late would be helpful.

14. What is the most important improvement that could be made to make your time traveling to the bus stop better?

- Me getting out of bed earlier!
- · Nothing really
- None, travelling is only an issue in the winter due to snowy/icy parking lots and roads.
- N/A I drive 20 minutes to catch the bus. Live in Midway minimal bus service (McDonald) for my flexibly schedule.
- Have a Robinson cop sit there to time some of the speeders and post more signs on the speed limit. If someone is killed up in front of IKEA, I'm sure you will get some action from the commissioners and the police chief.
- · Lower gas prices
- It is hard to turn left coming out of the IKEA after I get off the bus. Stop light?
- There needs to be sidewalks. I cannot believe there is no walkway from the Town Center area to the Pointe at all. I also do not see why there is no way for a pedestrian to get from Old Steubenville Pike to the Pointe.
- Begin the 28X pick-up at Robinson to downtown at 7:00 AM or begin bus service form the Wave Pool. Losing bus routes is a concern as we only have Carnegie, Imperial, and Moon for park and ride, besides Robinson which begins downtown routes at 9:00 AM.
- Enforce speed limits to 15/25 miles in the mall zones.
- The 7:47 AM (downtown time) 28X is overcrowded, the airport passengers are not as well accommodated as they should be, and the commuters have no choice but to stand for 25 minutes while their butts are in the faces of those sitting.
- · Better car parking arrangements at IKEA
- None although I know some people walk and there are no sidewalks in the area (I drive)
- Better/more times for bus runs in Moon. I have to go to Robinson if I work late.
- I wish it was shorter. I drive to Coraopolis (21A) from Moon because the Moon bus only leaves in the A.M. and for about 2 hours in the P.M. I am a student and I can't work from the A.M. to P.M. because of class.



Appendix M

PowerPoint Presentation of Bus Stop Survey Results

ACTA Safety and Security at Suburban Bus Stops User Survey Results

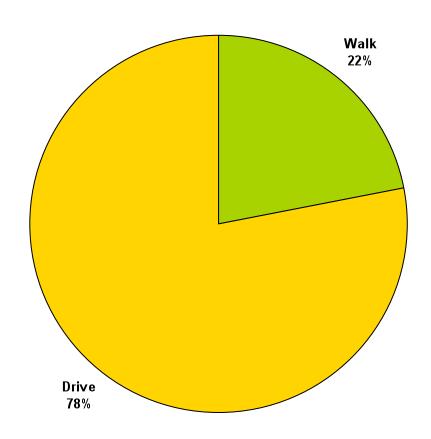
December 4, 2008

Introduction

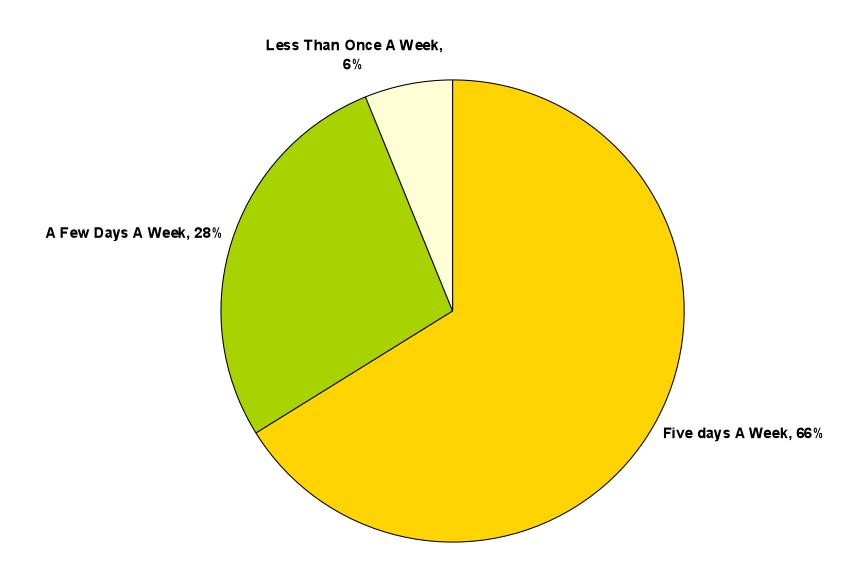
In October 2008 ACTA distributed over 120 surveys to bus riders at the IKEA bus stop **located in Robinson Town Centre. Approximately 35** completed surveys were returned. The results are detailed in the following slides.



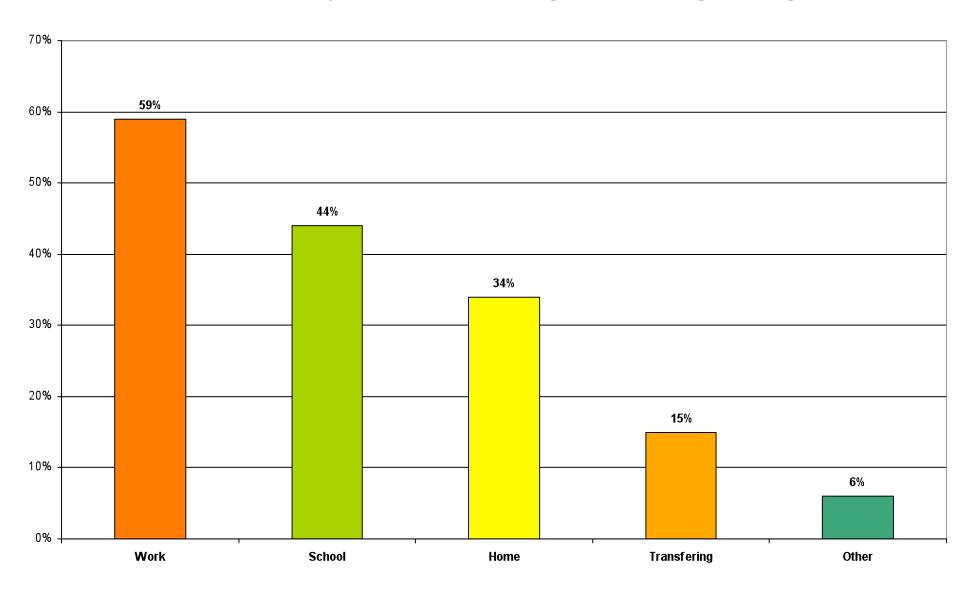
Did you walk or drive to the bus stop today?



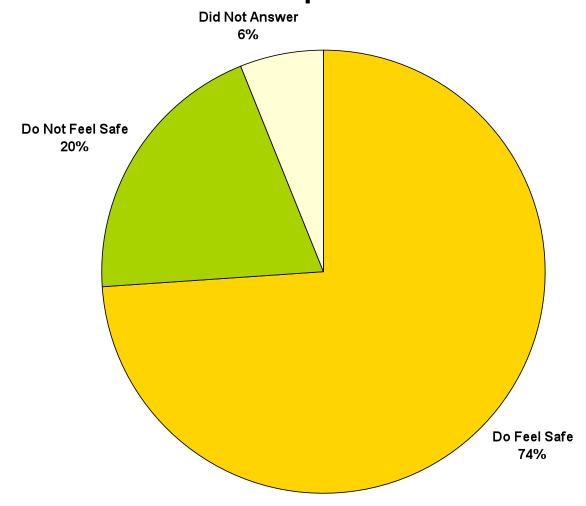
How often do you take the bus?



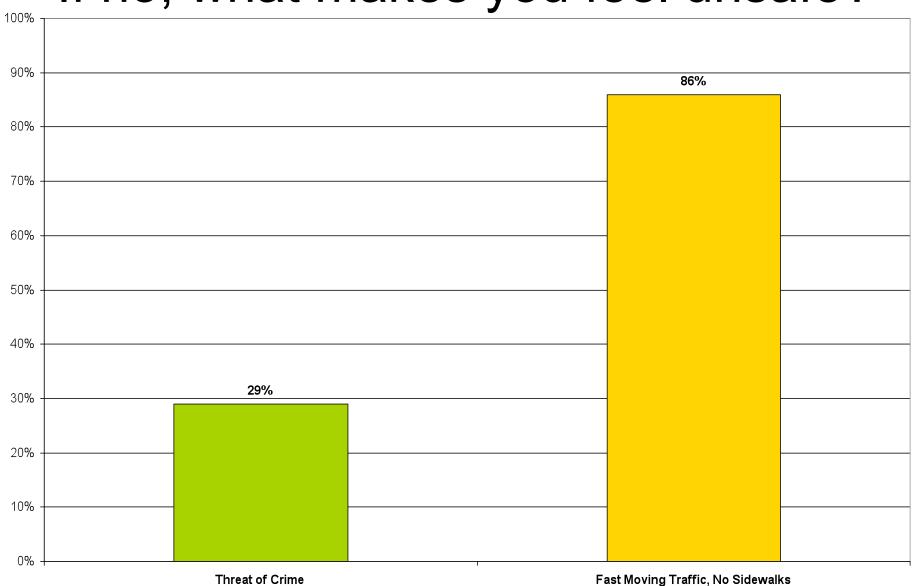
Where are you coming from/going to?



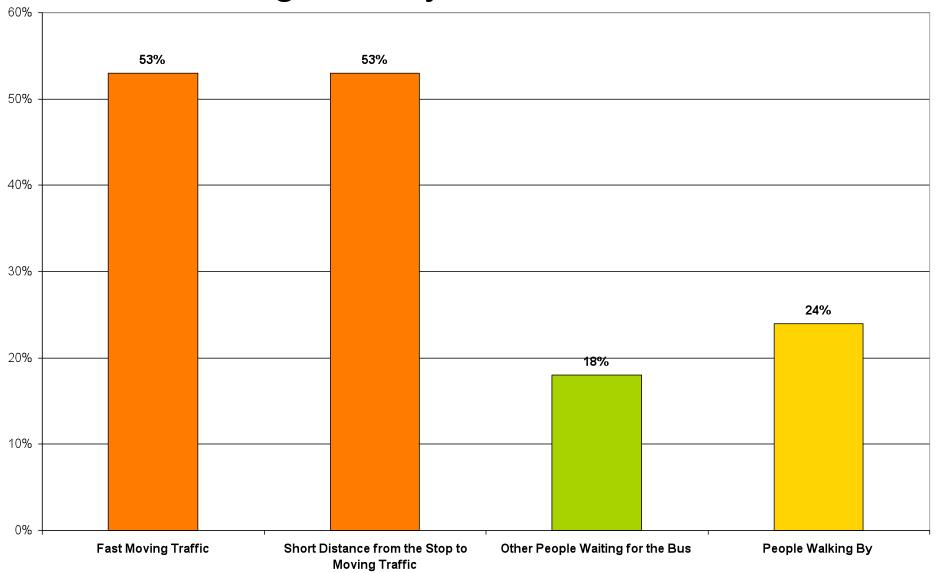
Do you feel safe walking to the bus stop?



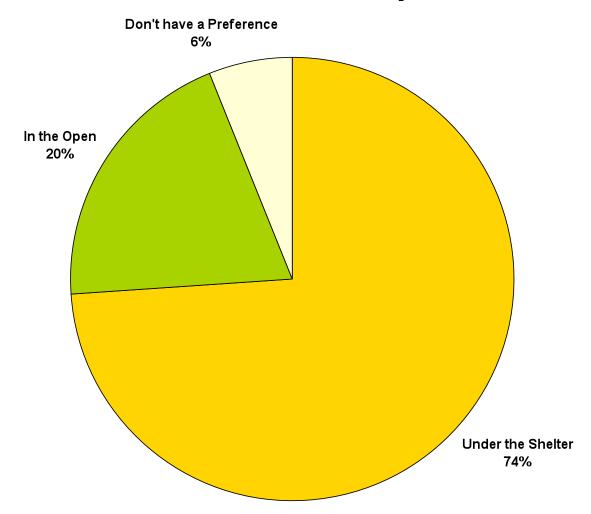
If no, what makes you feel unsafe?



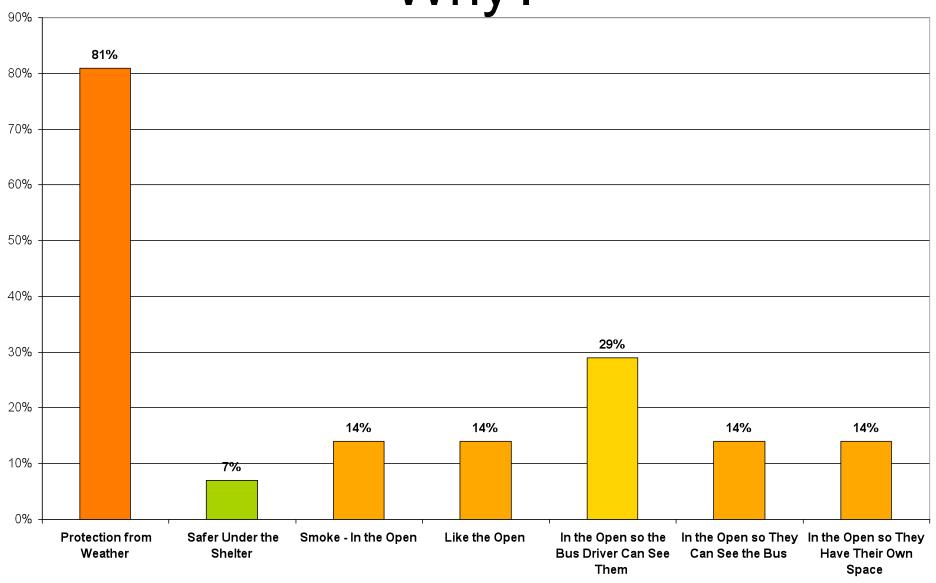
When you are waiting at the stop, do any of the following make you feel uncomfortable?



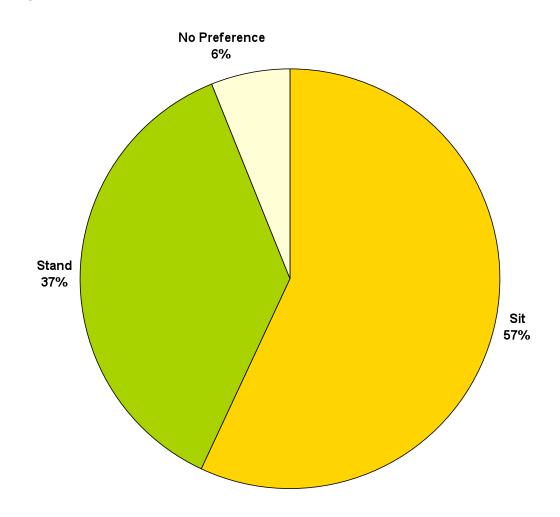
Do you prefer to wait under the shelter or in the open?



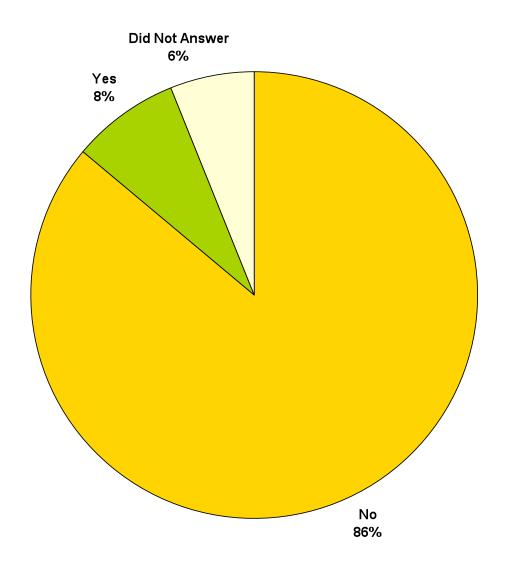
Why?



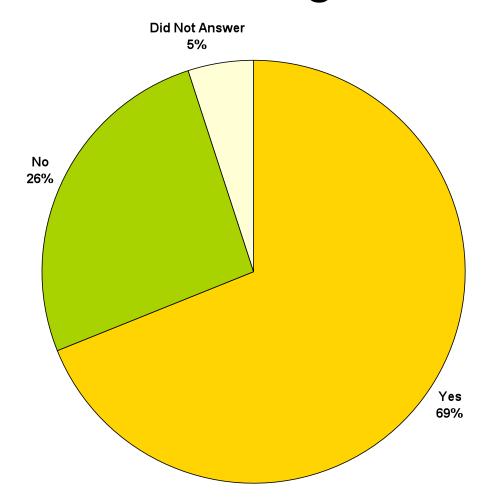
Do you prefer to sit or stand?



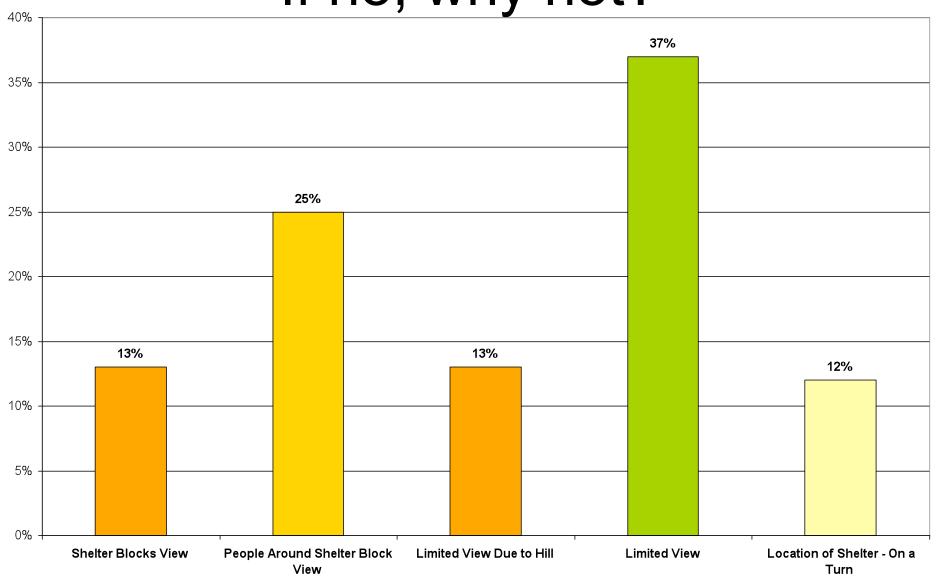
Are there usually enough seats in the shelter to accommodate those who want to sit?



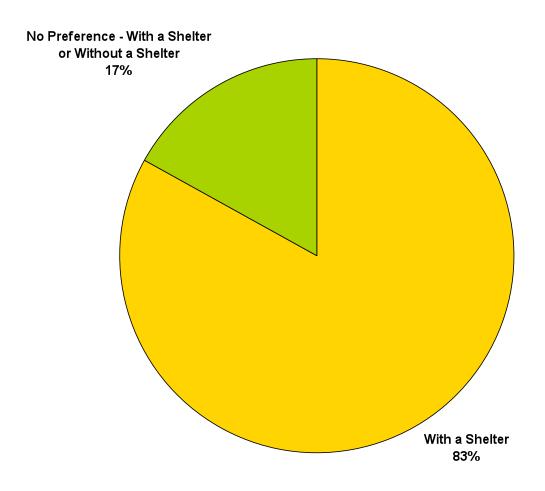
Can you see the bus coming if you are sitting?



If no, why not?



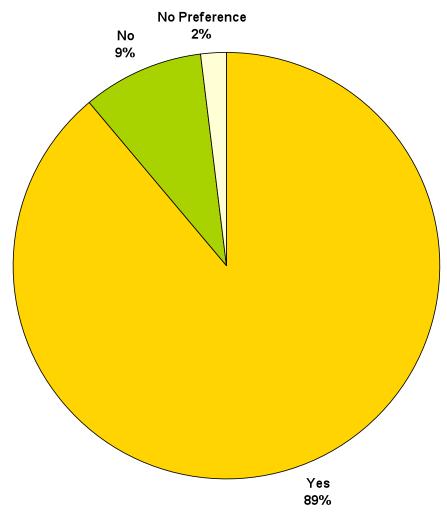
Do you prefer to wait at a stop...?



How important would the following improvements be to you?

	Very Important	Neutral	Not Important
Bus schedules at the bus stop	70%	17%	13%
Information on when the next bus is coming	77%	16%	7%
Lighting	66%	24%	10%
An available seat	46%	26%	26%
Move the bus stop back from the road	25%	42%	33%

Is this (where you wait for the bus) a good location for a bus stop?



Why?

- It is a convenient spot, but it is just inches away from a constant, swift flow of traffic.
- It's easy to access, has a parking lot, but in the winter roads are icy.
- A lot of transfers occur here.
- It is heavily travelled and easily accessible.
- You can park your car there.
- Near retail shops. Easy to access to interstate, plenty of parking.
- It's convenient for people who work in the area and you can see the bus early enough to gather your stuff.
- Good place for parking and very populated with people at all times of day.
- It is convenient to places that are serving food.



What is the most important improvement that could be made to make your time waiting at the bus stop better?

- The bus to be on time
- More room there are a lot of commuters on this bus
- Moving the bus stop back from the road so that a line could be formed for those waiting.
- Maybe more seats. I'm young but I worry about older people standing. A bigger shelter would be nice in the winter though.
- Better lighting at night/clean area at bus stops and a crosswalk at all shelters/bus stops.
- Knowing when the next bus arrives.
- Move shelter back from the road and grade the ground better, very rough, rocky and sloped as it is.
- More pavement instead of grass and gravel.
- The 28X should pick up from the Robinson stop earlier on weekdays.
- A bus schedule at the bus stop.
- No smoking in the shelter. Poor drainage, when raining heavy you get soaked in the shelter (cars splash)
- Lighting, at night the station is really dark and I've had people follow me through the parking lot.
- It would be ideal if the 28X (IKEA) stop could be moved back a couple feet.
- Maybe some way to let people know if buses are going to be late would be helpful.



What is the most important improvement that could be made to make your time travelling to the bus stop better?

- It's hard to turn left coming out of IKEA after I get off the bus. Stop light?
- There needs to be sidewalks. I cannot believe there is no walkway from the Town Centre area to the Pointe at all.
- Begin the 28X pick up at Robinson to downtown at 7:00 AM or begin bus service from the Wave Pool.
- Enforce speed limits to 15/25 miles in the mall zones.
- Have a Robinson cop sit there to time some of the speeders and post more signs on the speed limit. If someone is killed in front of IKEA, I'm sure you will get some action from the commissioners and the police chief.
- The 7:47 AM (downtown time) 28X is overcrowded, the airport passengers are not as well accommodated as they should be, and the commuters have no choice but to stand for 25 minutes.
- Better car parking arrangements at IKEA.
- Better/more times for bus runs in Moon. I have to go to Robinson if I work late.



Late Night Shuttle



- Tired of walking in the dark!!!
- Coming Soon...... Just in time for those late Holiday hours!!
- Late evening shuttle service that will connect you to the 28X service that goes into Downtown Pittsburgh and Oakland.
- Shuttle stops will serve The Mall at Robinson, The Pointe at North Fayette, Robinson Town Centre and other key locations in the retail area.
- Connection will be made at IKEA bus stop.
- Proposed start date is Monday, December 1, 2008.
- Ask your employer to let you know when schedule information is available.
- Schedule information should be available the week of November 24, 2008
- Any questions call ACTA staff at 412-809-3504.



Appendix N

Summary of Zoning Ordinances

7 November 2008

ACTA Safety & Security at Suburban Bus Stops Review of Zoning Ordinances for the Townships of Robinson, North Fayette, & Moon

Robinson Township

Zoning district category is "C-3" at Hub Station.

Township to provide property line and right of way information.

Billboards allowed only in "C2." (pg. 530)

No structure shall be built within or above an easement or public right of way. (pg. 507)

North Fayette Township

Zoning district category is "B-2" at office park location, Retail center, and Intermodal Transfer site.

Property line and right of way information was provided.

Billboards are conditional uses only in "I-2" and "PNRD" districts only. (pg. 7)

Restrictions on Canopies and Similar Structures. (pg. 15)

No billboard shall be erected over any sidewalk or public right of way. (pg. 92)

No permanent structure may be erected in a right-of-way. (pg. 208)

Moon Township

Zoning district category is "C2" and "University Boulevard" Overlay District at Busy Roadway location.

Property line and right of way information was provided.

No structure within the "UB" district shall be within 10 feet of buffer yard or within 25 feet of the street right of way. (208-505, F. (2)(d))

Billboards are prohibited in the "UB" district (208-505, F. (3)(b)), however, deviations may be permitted as a Conditional Use (208-505, G.).

Canopies for the protection of the public may be considered to be temporary structures and are allowed for 6 months or less. (208.67)

Billboards are not allowed within 10 feet of lines of any street unless authorized. (208.80)

Billboards are allowed as Conditional Use provided that they are not located within 750 feet of each other nor on the walls of any structure. (208.87)

All three townships require site triangles to be maintained at intersections. All three townships require setbacks and buffer areas on private property.



Appendix O

Literature Search Abstracts



Safety and Security at Suburban Bus Stops Literature Search Abstracts

Title: Accessing Transit: Design Guidelines for Florida Bus Passenger

Facilities

Author(s): Harrison Higgins and Ivonne Audirac

(Florida State University)

Published By: Florida Department of Transportation

Date: March, 2004

This guidebook is divided into four chapters. Chapter 1, "Curb-Side" Guidelines", presents guidelines for improving the accessibility to buses and bus mobility in the right of way. This information could be used by transit planners, transit agency officials involved in shelter siting and advertising programs, and transportation and civil engineers and architects for bus passenger facility site layouts and circulation in the right of way and on private property. Chapter 2, "Street Guidelines", presents guidelines for improving the bus passenger experience at the street level including the configuration of bus stops and the coordination of bus stop elements like seating and shelter, wayfinder safety and security, connections to pedestrian and bicycle circulation, landscaping, and the design of bus stops. It is useful for transit planners, transportation and civil engineers and architects who provide for bus passenger facility site layouts and circulation in the right of way and on private property. Chapter 3, "Facility Prototypes", provides prototypical designs of bus passenger facilities in development contexts that are typical for Florida. The facilities considered include: on-line bus stops, primary stops, transit malls, transfer centers and park and rides. Each type of facility is accompanied by development guidelines for location, required site areas, pedestrian connections and connections to other modes of transportation and an inventory of the individual design elements that are combined to create that facility. Chapter 4, "Land Use Guidelines", describes methods for creating transit supportive

development. Examples are provided for typical developments and development standards supportive of transit and a multi-modal transportation network. This chapter is useful for elected officials, land use planners, and transit planners as a reminder of key issues and the relationship between different disciplines that will result in a transit supportive environment.

Title: Bus Stop Guidelines to Meet Urban, Suburban and Rural

Conditions

Author(s): David Metcalf and Vanessa Bond

Presented At: ITE 2006 Technical Conference

Date: March, 2003

The initial entry point in a bus and transit system is the bus stop. Fairfax County, Virginia has recognized that bus stops make a difference and have embarked on a plan to upgrade the entire system through this crucial element. As an initial step I this program, the County performed an inventory, evaluation, and improvement plan for the County's 4,000 stops. Critical to the effort was development of criteria, design standards, and best practices to guide the improvement designs. The design guidelines that were developed pulled elements of criteria from other transit operators and engineering agencies. These criteria recommended ADA compliant dimensions and the size of the stops. They also provided suggestions for bus stop location. The guidelines provide location guidance, dimensions and techniques to overcome the problems found in urban, suburban, and rural roadway sections. For example, along many rural sections the bus stops are located between a ditch and the shoulder of the roadway. In this case, the guidelines provide rules and considerations depending on surrounding conditions, ridership, and traffic. For many stops, there was not an easy way to provide safe access. In those situations, the recommendation was to relocate the stops.

Title: Effectiveness of Bus Nubs for Bus Stops

Author(s): Janice Daniel and Walter Konon

Published By: New Jersey Institute of Technology

Date: September, 2004

The focus of this research is the use of nubs as a location for a bus stop zone. This application of bus nubs was proposed in Transit Cooperative Research Program (TCRP) Report #19, "Guidelines for the Location and Design of Bus stops" (1996). In this report, some of the advantages cited for the use of nubs as a bus stop zone includes that bus nubs: 1) remove fewer parking spaces than the traditional curb-side bus stop; 2) decrease the walking distance for pedestrians crossing the roadway; 3) provide additional sidewalk area for bus patrons to wait; and 4) result in minimal delay for the bus. When a bus stops at a bus nub, the bus remains in the travel lane rather than weaving into and out of the curb lane as is typical of curbside bus stops. Removing this weaving has the potential of reducing conflicts between buses and other vehicles on the roadway as the bus does not have to merge back into the traffic stream after stopping at the bus stop. The safety and effectiveness of bus nubs is questioned in urban locations where heavy vehicular volumes and possible long dwell-times at the bus stop may result in increased delays and possible head-on collisions as vehicles may attempt to go around the stopped bus. Benefits attributed to bus nubs, including reduced delays to buses and traffic calming effects, must be weighed against the delays to other vehicular traffic on the roadway as well as possible safety impacts. TCRP Report #65, "Evaluation of Bus Bulbs" (2001), provides a review of the impacts related to bus bulbs. The research described in the report summarizes work performed on an evaluation on the effectiveness for bus nubs taking into account the particular conditions and driver population in New Jersey.

Title: Effects of Bus Stop Design on Suburban Arterial Operations

Author(s): Kay Fitzpatrick and R. Lewis Nowlin

Published By: Transportation Research Board

Transportation Research Record No. 1571

Date: 1997

When choosing the location and design for a particular bus stop, several alternatives are available. These alternatives include near-side, far-side, or mid-block locations, and curbside or bus bay

designs. Several studies have focused on choosing the optimum location of a bus stop for given situations; however, few have investigated the effects of bus stop design. The objective is to use computer simulation to determine how bus stop design influences traffic operations around a bus stop. Bus stop designs analyzed included curbside, bus bay, open bus bay, and queue jumper. The results can be used to aid in the selection of a preferred bus stop design for a given location and traffic volume. The analysis was divided into two separate studies: curbside versus bus bay/open bus bay, and queue jumper versus no queue jumper. The analysis consisted of investigating the relationships between variables such as travel time, speed, and traffic volume for given bus stop designs and locations. The bus stop locations investigated in the curbsidebus bay/open bus bay study included midblock and far-side. Results indicated that the bus bay design provided the greatest benefit at traffic volumes of approximately 350 vehicles per hour per lane (vphpl) and above; however, notable advantages in vehicle speeds were also observed at 250 vphpl. Results from the queue jumper study revealed that the queue jumper design provided significant benefits at volumes above approximately 250 vphpl.

Title: Experiences with Bus Bulbs

Author(s): Kevin Hall and Kay Fitzpatrick

Presented At: ITE Annual Meeting And Exhibit

Date: August, 2001

Bus bulbs, also known as nubs, curb extensions, or bus bulges are sections of sidewalk that extend from the curb of a parking lane to the edge of the through lane. In regard to traffic operations, bus bulbs operate similarly to curbside bus stops. Buses stop in the traffic lane instead of weaving into a parking-lane curbside stop. A major advantage of using bus bulbs is the creation of additional space at a bus stop for shelters, benches, and other bus patron improvements when the inclusion of these amenities would otherwise be limited without the additional space. The primary motivators for installing bus bulbs are to reduce congestion on sidewalks and to eliminate the bus weaving maneuver into a parking-lane curbside stop (also called a bus bay stop). Bus bulbs are appropriate at sites with high patron volumes, crowded city sidewalks, and curbside parking. Bus bulbs were studied as part of a more comprehensive research study of bus stop design and

location, which was sponsored by the Transit Cooperative Research Program (TCRP). Researchers visited four transit agencies on the West Coast that were known to use bus bulbs. The research team visited San Francisco, Portland, Seattle, and Vancouver, British Columbia, to observe and document existing and planned bus bulbs. This paper documents the findings from the visits.

Title: Fear Factor: How Scary Are Bus Stops?

Author(s): Unknown

Published By: Institute of Transportation Studies

Berkeley CA

Date: Winter 2005 – 2006, Volume 4, Number 1

The article discusses research done at 120 bus stops in Los Angeles identifying the links between certain environmental attributes and crime. Of particular interest was the level of fear felt by women waiting at bus stops. Many times women do not report these crimes. According to one of the authors of the study, "If someone is fearful, she will not use transit if there are any other options." Fifty-nine percent of women and forty-one percent f men do not feel safe waiting for a bus. Suggestions are given for ways to prevent bus stop crime.

Title: Findings from a Survey on Bus Stop Design

Author(s): Kay Fitzpatrick, Dennis Perkinson and Kevin Hall

Published By: Journal of Public Transportation

Date: Spring, 1997

The bus stop is the first point of contact between the passenger and the bus service. The spacing, location, and design of bus stops significantly influence transit system performance and customer satisfaction. At present, relatively few transit agencies have comprehensive reference material available to assist in bus stop location and design. In recognition of the importance of bus stop location and design, the Transit Cooperative Research

Program (TCRP) sponsored research to develop guidelines for locating and designing bus stops in various operating environments. These guidelines can assist transit agencies, local governments, and others (e.g. developers) in locating and designing bus stops that consider bus patrons' convenience, safety, and access to sites, as well as safe and efficient transit operations and traffic flow.

Mail out surveys were conducted as part of the TCRP bus stop location and design guidelines project. The mail-out surveys, which were an initial task of the project, were used to determine current practices and areas of concern regarding bus stop design for transit agencies and states. Less than half of the responding transit agencies currently use guidelines or manuals, which indicates a need for the document being developed. Furthermore, almost every agency has moved a bus stop to improve traffic operations and more than half have redesigned a curbside stop to a bus bay or nub design.

Transit agencies are typically responsible for establishing routes, stop spacing, stop location (near side, far side, or midblock), type of stop (curbside, bus bay, or nub), bus stop signs, and amenities (such as street furniture). Functions jointly shared by transit agencies and cities, counties, and states include selecting the length of the bus stop zone, selecting pavement design at bus stops, removal of parking for bus stops, bus stop relocation due to traffic, and bus priority measures. Selecting and maintaining traffic control devices is primarily a city function. The categories considered during the bus stop location and design process are (in descending order): bus operations, area type or land use, passenger safety, roadway features, and traffic conditions.

Title: Guidelines for the Location and Design of Bus Stops

Author(s): Unknown

Published By: Transportation Research Board

TCRP Report # 19

Date: 1996

This report will be of interest to individuals and groups with a stake in the location and design of bus stops. This includes those associated with public transportation organizations, public works departments, local departments of transportation, developers, and public and private organizations along or near bus routes. The primary objective of this research was to develop guidelines for locating and designing bus stops in various operating environments. These guidelines will assist transit agencies, local governments, and other public bodies in locating and designing bus stops that consider bus patrons' convenience, safety, and access to sites as well as safe transit operations and traffic flow. The guidelines include information about locating and designing bus stops and checklists of factors that should be considered. The research began with a literature review and the identification of stakeholders' concerns through mail-out and telephone surveys and face-to-face interviews. A review of 28 transit agency manuals on bus stop design and location provided the basis for an appraisal of current practice. Observations made at more than 270 bus stops during regional visits to Arizona, Michigan, and California were supplemented with traffic field studies conducted at 14 bus stops and pedestrian field studies conducted at 10 bus stops. Computer simulation of bus stops on suburban highways was also used to develop the findings. The guidelines include three sections: the "big picture", street-side design, and curb-side design. The guidelines also include two appendixes that present the results of the streetside and curb-side studies.

Title: Guidelines for the Use of Bus Bulbs

Author(s): Kay Fitzpatrick

Published By: Institute of transportation Engineers

ITE Journal

Date: May, 2002

The study looked at bus bulb (section of sidewalk that extends from the curb of a parking lane on the edge of the through lane) configurations as part of a study of bus stop design and location. The objective was to develop best practices for location and design decisions. Representatives from cities that use bus bulbs such as and Francisco, Portland, Seattle and Vancouver were interviewed. The conclusion was that "in areas with high transit ridership and 24-hour curbside parking, bus bulbs may provide the opportunity to improve bus operation, provide space for patron amenities and create better pedestrian flow patterns."

Title: Hot Spots of Bus Stop Crime: The Importance of

Environmental Attributes

Author(s): Anastasia Loukaitou-Sideris

Published By: University of California Transportation Center

Date: Unknown

> This study focuses on bus stop crime and seeks to identify the environmental attributes that can affect the bus rider's security while at the bus stop. Using crime data for the years 1994 and 1995 made available by the transit division of the Los Angeles Metropolitan Transportation Authority, the study discusses some general characteristics of bus stop crime. Following the argument of criminologists that certain place characteristics can affect the incidence of crime, the study employs qualitative research methodology (observation, mapping, interviews and surveys) to examine in detail the physical and social environment around the ten most dangerous bus stops in Los Angeles. It finds an abundance of "negative" environmental attributes and a general lack of "defensible space" elements. It also finds that different types of crime tend to occur under different environmental conditions. The paper discusses design responses as an approach to crime prevention at bus stops.

Title: Is it Safe to Walk Here?

Author(s): **Anastasia Loukaitou-Sideris**

Presented At: Transportation Research Board Conference

2004 Date:

> Fear of victimization and crime are important concerns for women in cities. Although differences among women exist because of age, race, class, cultural and educational background, sexual orientation, and disability status, as well as personal characteristics such as personality traits and sense of physical competence, women typically report higher levels of fear than men. Women's

fear is particularly associated with specific environmental conditions and settings. An overview is given of women's fear of crime in public spaces. After a discussion of a series of facts and fallacies about women's fear, the outcomes of fear as reflected in women's behavior and travel patterns are reviewed. Empirical findings are reported from two surveys of women in neighborhood parks and waiting at bus stops in Los Angeles, California. Design and policy responses to women's fear of victimization are then focused on and the interrelationship between environment and crime is analyzed, with suggestions for design and planning strategies for safer public spaces.

Author(s): Kay Fitzpatrick, Kevin Hall, Dennis Perkinson, and E. Lewis

Location and Design of Bus Stops

Nowlin

Published By: ITE Journal, Volume 67, Number 5

Date: May, 1997

Title:

A Transit Cooperative Research Program was initiated to develop bus stop location and design guidelines with the goal of assembling the most comprehensive and technically current information into one reference document. The development of the guidelines began with a literature review and the identification of stakeholders' concerns via mail out and telephone surveys. Face to face interviews were conducted in Arizona, Michigan and California. A review of 28 transit agency manuals provided an assessment of current practices. Observations during regional visits were supplemented with traffic and pedestrian field studies. Computer simulation of bus stops on suburban highways also contributed to the findings. The authors prepared a report on their findings and developed guidelines appropriate for direct application by transit agencies and other stakeholders

Title: Pedestrian Safety Guide for Transit Agencies

Author(s): Dan Nabors, Robert Schneider, Dalia Leven, Kimberly

Liberman and Colleen Mitchell

Published By: FHWA (FHWA-SA-07-017)

Date: February, 2008

The guide is intended to provide transit agency staff with an easy to use resource for improving pedestrian safety. It includes a variety f approaches to address common pedestrian safety issues that are likely to arise near transit stations, bus stops, and other places where transit is operated. It provides references to publications, guides and other tools to identify pedestrian safety problems. Descriptions of engineering, education and enforcement programs that have been effectively applied by transit agencies are included as well as background information about pedestrian safety and access to transit.

Title: Toolkit for the Assessment of Bus Stop Accessibility and

Safety

Author(s): Unknown

Published By: Easter Seals Project Action

Date: 2008 (?)

The toolkit is intended to be a resource to enhance the accessibility of bus stops or help in the development of a strategic plan to achieve system-side accessibility. More specifically, the toolkit can be used to:

- Determine minimum ADA requirements
- Enhance bus stop accessibility through universal design
- Inventory bus stops
- Develop a strategic plan for system-wide accessibility
- Advocate for improvements

Probably one of the most useful sections is the comprehensive sample check-list to evaluate existing bus stops. The checklist goes far beyond accessibility issues and is quite useful for most aspects of bus stop design.

Title: Transit Security Design Considerations

Author(s): Matthew Rabkin et al

Published By: Federal Transit Administration

FTA-TRI-MA-26-7085-05

Date: November, 2004

This document provides security guidance on three major transit system components – bus vehicles, rail vehicles, and transit infrastructure. It provides a resource for transit agency decision makers, members of design, construction and operations departments, security and law enforcement personnel and consultants and contractors in developing an effective and affordable security strategy following the completion of a threat and vulnerability assessment and development if a comprehensive plan.

Title: Where the Bus Meets the Customer – An Inventory and

Assessment of Bus Stops

Author(s): Jason Quan

Presented At: American Public Transportation Association

Bus & Paratransit Conference Proceedings

Date: May 2005

Locating and improving bus stops to minimize safety risks and improve accessibility are key elements in an overall system safety plan that includes operating policies, passenger policies, and driver training and supervision. An accessible bus stop and a safe surrounding pedestrian environment are critical components in an accessible public transportation system.

For safety and accessibility, a bus stop takes on many elements. The two primary elements shown in Figure 1 are 1) Can a person, including a person with a disability, get to the stop safely? (i.e., availability of crosswalks, curb cuts, signalized intersection, etc.), and 2) If the person can reach the bus safely, is the stop functional so that it allows for a safe place to wait for and board the bus?

This paper outlines the necessary steps in developing a bus stop improvement program. The first step in creating a safe and accessible environment for patrons is to develop a set of guidelines that will assist in determining the location, placement, configuration, and position of new stops. The second step is to develop a relational database (i.e. Microsoft Access, Oracle, SQL) that will be

used to store all information about the bus stop. The third step is to develop a maintenance program for routine upkeep of the stops and database. The fourth step is to develop an improvement program to bring any substandard bus stop up to standard.

This paper also discusses what types of information should populate the bus stop database. The various types of information should include, but not be limited to,

- Location information (i.e., bus stop ID, on street, nearest cross street, position, direction)
- Accessibility information (i.e., landing pad, curb cuts, sidewalk)
- Safety (i.e., crosswalks, pedestrian signals, stop location, lighting)
- Amenities (i.e., shelters, benches, trash cans), and
- Signage (i.e., route numbers, contact information, schedule information).

Depending on the number of bus stops in the transit system, this can be a major undertaking. Ride-On in Montgomery County, Maryland has approximately 5,600 bus stops and the full inventory and survey of Ride-On stops took approximately 12 months. This was accomplished by using current technology that allowed the surveyors to electronically store the data in the field. The paper discusses the technology that can be used to make the inventory process more accurate and efficient.

By investing time and money to develop a bus stop improvement program, a system can help to mitigate some of the safety risks experienced by its riders. In addition, by improving the level of safety and accessibility of bus stops, the system may be able to encourage and increase fixed-route use by patrons with disabilities including the Americans with Disabilities ACT (ADA) paratransit eligible patrons.



Appendix P

Literature Search Bibliography

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