

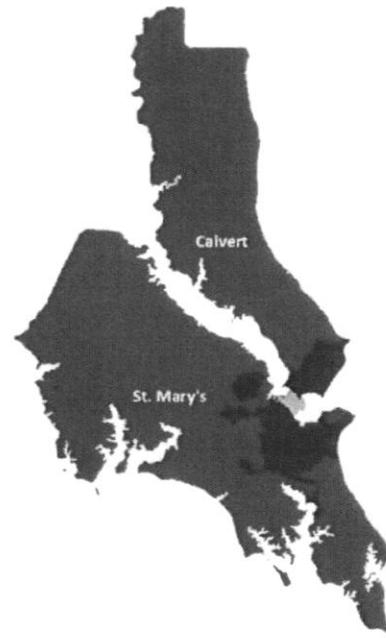
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Proposal for the
**Calvert – St. Mary's Metropolitan
Planning Organization
Bus Stop Assessment and Plan**

In Response to RFP 2019-031

Technical Proposal

August 14, 2018



Prepared for

Calvert - St. Mary's
**METROPOLITAN
PLANNING ORGANIZATION**



**Prepared by
KFH Group, Inc.
Bethesda, Maryland**



Plan of Work

TASK 1: PROJECT MANAGEMENT

Subtask 1.1 – Initial Project Meeting

In this initial task, KFH Group staff will work with the Calvert - St. Mary's MPO to arrange for an initial project meeting with stakeholders to kick off the project. This first meeting will permit the following:

- Determination of ongoing management
- Review of schedule and scope of work and provide clarification (if necessary)
- Discussion of potential issues or concerns
- Identification of key contacts
- Establishment of project objectives and next steps
- Review of draft data dictionary including data elements to be surveyed

Subtask 1.2 – Obtain GIS and Bus Stop Data

As part of our initial on-site visit, KFH Group will coordinate with Calvert and St. Mary's Counties to collect pertinent bus stop and pathway data. KFH Group has previously completed Transit Development Plans for Calvert and St. Mary's Counties where bus stop/flag stop locations were mapped and sample ridership data was collected. KFH Group will leverage this existing data as a baseline for the study; through coordination with Calvert and St. Mary's Counties these datasets will be easily updated.

TASK 2: SURVEY PREPARATION

Subtask 2.1 – Develop Annotated Data Dictionary

The first step in conducting a bus stop survey and evaluation is to determine what types of information will be collected at each stop. The annotated data dictionary will provide a detailed listing of the information that will be inventoried along with a text description. Even though KFH Group has surveyed thousands of bus stops, we always like to review the typical types of data elements we collect with local transit systems. Through this process, we can make adjustments based on the needs and preferences of the systems. Generally, information collected at each stop falls into one of the following five categories:

1. **Bus Stop Location Description** – Bus stop number, routes served, on- street, cross street, position and placement, (i.e. near-side, far-side, mid-block, heading, stop type, and land use such as commercial, single-family residential, and mix.)
2. **Passenger Amenities** – Size and accessibility of shelters, size and type of trash receptacles, benches, bicycle racks, vendor boxes, route and area maps, and bus schedules.
3. **Signage** – Bus stop signage and poles.
4. **Safety** – Sight lines, lighting (to the extent possible), proximity to a controlled intersection, posted speed limit, number of travel lanes, and crossing amenities,(i.e. marked crosswalk, pedestrian signal, and pedestrian refuge island).
5. **Accessibility** – Presence/absence of ADA compliant facilities, landing pad, landing pad obstructions, sidewalk width, sidewalk obstructions/protrusions, sidewalk connectivity, curb clearance, and curb ramp connectivity.

As part of the initial kick-off meeting, the KFH Group Team will discuss and review the information to be surveyed and make any changes based on input from the MPO and Calvert and St. Mary's County staff.

Subtask 2.2 – Identify Potential New Signed Bus Stop Locations

Calvert and St. Mary's County both have flag stops within the MPO study area. However, the vast majority of bus stops within the Calvert County area are flag stops where riders wave their hands at an approaching bus to notify the bus driver that they wish to board. The bus driver will then pull off at a safe location to allow the rider to board the bus. While there are mainly flag stops in Calvert County, there are also a number of designated stops in route schedules; however, these designated/scheduled stops are not signed.

KFH Group will work with Calvert and St. Mary's County to identify potential locations for new signed bus stops based on locations/areas where there is high boarding and alighting activity, proximity to different types of land uses (i.e. medical facilities, schools), and input from County staff.

These locations will be surveyed as part of Task 3.

Subtask 2.3 – Document Current Bus Stop Regulations from ADAAG

KFH Group will review and document the ADA Accessibility Guidelines (ADAAG) in regards to bus stops on elements such as accessible landing pads, passenger amenities, signage, curb

ramps, and sidewalks. We will also reference the Public Right-of-Way Accessibility Guidelines (PROWAG) where it overlaps with the ADAAG.

Project Deliverable:

**Annotated Data Dictionary for Bus Stop Field Survey
Tech Memo #1: Overview of Existing ADAAG and PROWAG Guidelines**

TASK 3: INVENTORY AND ASSESS BUS STOPS

Subtask 3.1 – Conduct Field Survey

Using the data dictionary, an electronic survey tool will be created to allow the survey to be completed on a GPS enabled mobile device. Each signed bus stop and each new potential location identified in Subtask 2.2 will be inventoried based on the annotated data dictionary. KFH Group will survey each stop for ADA compliance, pedestrian access, passenger amenities, safety, and connectivity to the nearest intersection. For mid-block bus stop locations, the survey will document if there is infrastructure to facilitate pedestrian crossings.

Each surveyor will be equipped with a GPS enabled Trimble device, a measuring wheel, tape measure, inclinometer, and digital camera. The Trimble device will collect latitude and longitude data and allow staff to electronically enter information; while the measuring instruments and inclinometer will aid in collecting specific measurements of the bus stop.

Subtask 3.2 – Photograph Bus Stops

A digital camera will be used to take a minimum of three images of each bus stop from different vantage points. The first image will be taken at the near-side of the stop, the second image will be directly across the on-street of the stop, and the third image will be taken from the far-side of the stop. In addition to the data collected at each stop, the pictures taken will provide the Calvert - St. Mary's MPO with a photo catalog of each stop. These images will also help with KFH Group's quality checks of the data collected. Quality assurance and quality control of information collected is vital to the success of the bus stop survey and assessment. On a daily basis, KFH Group will process each bus stop's information, cross checking data with the photos for anomalies, inconsistencies, inaccuracies and typographical errors.

Subtask 3.3 – Assess Safety and Accessibility of Bus Stops

Using the survey data collected in Subtask 3.1, the KFH Group Team will determine the safety and accessibility of each bus stop. A scoring will be assigned to each stop in order to rank the

stops on a scale ranging from fully accessible to completely inaccessible. Incorporated in the scoring will be an overall walk score of the bus stop location. This walk score will be based on the website Walk Score that measures the walkability of a location's walking routes and nearby amenities. Factored into the walking score is a measure of pedestrian friendliness by analyzing population density and road metrics.

By scoring and ranking the accessibility of each stop we will be able to determine locations with the most inaccessible stops allowing local agencies to decide on appropriate actions to take, whether it be relocating the stop or prioritizing resources to improve the stop.

Project Deliverable:

Tech Memo #2: Bus Stop Existing Conditions Summary Overview

TASK 4: DEVELOP GUIDELINES FOR BUS STOP PASSENGER AMENITIES

Under this task, KFH Group will work with Calvert and St. Mary's County to develop a bus stop hierarchy that will help in prioritizing passenger amenities at each stop and set the threshold for future stop creation. Prioritization criteria will include factors such as stop activity, adjacent land use, local policies, and service type. This will be formatted into guidelines for the placement of passenger amenities and improvements.

Project Deliverable:

Tech Memo #3: Bus Stop Guidelines for Passenger Amenities and Improvements

TASK 5: DEVELOP BUS STOP IMPROVEMENT RECOMMENDATIONS

Subtask 5.1 – Identify Bus Stop Improvements

In this subtask, KFH Group will develop a list of bus stop improvements for each bus stop location (including flag and signed stops) that will address safety, accessibility, amenities and ADA compliance. In addition to the recommended improvements, KFH Group will provide an estimate of the cost of the improvement(s). It should be noted that the cost estimates are for planning estimates and not actual engineering or construction costs. To ensure the estimates are reflective of the local labor and material costs, KFH will work with the Calvert - St. Mary's MPO staff in estimating unit costs for specific types of improvements.

Subtask 5.2 – Identify Potential Improvement Barriers

As part of the development of bus stop improvements, potential barriers (if any) will be cited. Barriers may include the lack of public right-of-way (PROW), being adjacent to State roadways, placement of utilities, topography, and safety.

Subtask 5.3 – Identify Flag Stops as Candidates for Signed Stops

The recommended improvements will include a detailed list and map profile of proposed flag stop locations that are recommended as candidates for future signed bus stops. This evaluation process will be informed through the existing conditions review; including data collected on available ridership information, proximity to popular trip generators, and availability of public right-of-way. Additional factors will include the scope and complexity of required bus stop and pathway improvements, and their associated costs.

Project Deliverable:

Tech Memo #4: Bus Stop Improvement and Location Recommendation Summary

TASK 6: BUS STOP PROFILES

Subtask 6: Develop Individual Bus Stop Profiles

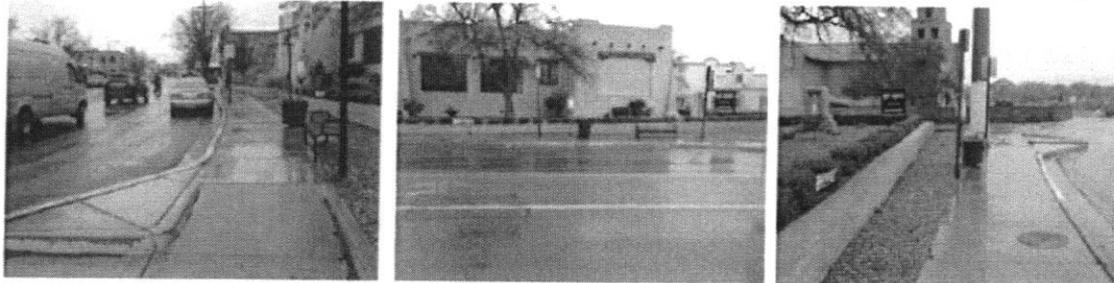
For each bus stop, a stop profile will be created that will provide an easy to read snapshot of all safety, accessibility, and amenity features. The stop profile will include photos, activity (if available), accessibility scoring (based on the assessment in Task 3), recommended improvements, and cost estimates. Additional information can be added to the stop profiles based on input and needs of the Calvert - St. Mary's MPO. Figure 1 provides an example of a previously completed bus stop profile for the Santa Fe, New Mexico MPO.

Project Deliverable:

Bus Stop Profiles

Figure 1: Example of Bus Stop Profile from Santa Fe, New Mexico

94163
 S GUADALUPE ST @ AGUA FRIA RD
 HEADING (degrees): 200 PLACEMENT: FS
 # OF TRAVEL LANES 3 POSTED SPEED LIMIT: 35
 BUS STOP CONNECTIVITY: GOOD
 AREA WALKSCORE: 84
 (0 = Car Dependent - 100 = Walker's Paradise)
 ACTIVITY: 4
 (based on sample data)



Adjacent Land Use

- | | | | | |
|--|-------------------------------------|--|--|--|
| <input checked="" type="checkbox"/> RETAIL | <input type="checkbox"/> COLLEGE | <input type="checkbox"/> CULTURAL | <input checked="" type="checkbox"/> RELIGION | <input type="checkbox"/> PARK/OPEN SPACE |
| <input type="checkbox"/> SINGLE FAMILY | <input type="checkbox"/> GOVERNMENT | <input checked="" type="checkbox"/> OFFICE | <input type="checkbox"/> MEDICAL | <input type="checkbox"/> RECREATION CENTER |
| <input type="checkbox"/> MULTI-FAMILY | <input type="checkbox"/> INDUSTRIAL | <input type="checkbox"/> SCHOOL | <input type="checkbox"/> HUMAN SERVICE | <input type="checkbox"/> VACANT LOT |

Bus Stop Sign and Pole

Bus Stop Signs:	1	Bus Stop Poles:	1	Route Match ID:	NONE
Bus Stop Sign Installation:	BUS STOP POLE	Bus Stop Pole Installation:	EARTH	Operators:	SANTA FE TRAILS
Bus Stop Sign Damage:	GRAFFITI	Bus Stop Pole Damage:	NONE		

Customer Information

Information Case:	BULLET	Route Schedule:	YES	Phone:	NONE
Information Case Accessible:	UNPAVED	Route Map:	YES	Route:	ROUTE 2
Information Case Damage:	BROKEN	System Map:	YES	Information:	
Digital Display:	NONE	QR Code:	NONE		

Amenities

Shelter Count:	0	Bench:	1	Bike Rack:	NONE
Shelter Type:	NA	Bench Installation:	FREESTAND	Trash Cans:	YES
Shelter Accessible:	NA	Bench Advertisement:	NONE	Vendor:	0
Shelter Foundation:	NA	Bench Damage:	GRAFFITI	Publication:	
Shelter Advertisement:	NA			Box:	
Shelter Damage:	NA				

Accessibility

ADA Landing Pad:	YES-OBS	Painted Curb:	NO	Curb Ramp OSNS:	YES
Pad Cross Slope (%):	0.3	Sidewalk Width (inches):	72	Curb Ramp OSFS:	YES
Pad Surface Problem:	NONE	Sidewalk Obstruction:	NONE	Curb Ramp CSAS:	YES
Pad Connect to Sidewalk:	YES	Sidewalk Surface Problem:	NONE	Curb Ramp CSOP:	YES
Pad Obstruction:	NONE				
Pad Connect to Curb:	YES				

Safety

Crosswalk OSNS:	NO	Crosswalk CSAS:	YES	Traffic Control:	NONE
Crosswalk OSFS:	NO	Crosswalk CSOP:	NO	Ped. Control OS:	NO
				Ped. Control CS:	NO

BUS STOP IMPROVEMENT RECOMMENDATION Possible MEF Factor/ROW Issue COST: \$ 1285

<u>Pole and Sign</u>	<u>Information Panel/Case</u>	<u>Accessibility</u>
REPAIR SIGN DAMAGE	RELOCATE INFORMATION PANEL/CASE	NONE
<u>Amenities</u>	REPAIR INFORMATION PANEL/CASE	
REPAIR BENCH		

TASK 7: FINAL REPORT

A final report will be prepared that documents the analysis and results conducted in the previous tasks. Tech Memos #1 through #4 as well as the bus stop profiles will be incorporated into the final report. The final report will be circulated among all study participants and an adequate review period will be allowed. Once all desired modifications have been completed, five hard copies and an electronic (PDF) copy of the report will be provided to the Calvert - St. Mary's MPO. In addition to the final report, all mapping data, GIS shapefiles, and other desired analysis files will be provided to the Calvert - St. Mary's MPO. These files will be provided in their original form and may include, but not be limited to, ACCDB, MPK, MXD, SHP, and XLS.

Project Deliverable:

Mapping Data, GIS Data, and Other Relevant Native Files
Draft Final Report and Final Report

Deliverables

PROJECT SCHEDULE

KFH Group anticipates that this project will be completed over a six-month timeframe, including the draft report that will be completed by the end of the six months. Figure 2 depicts the proposed schedule for the project including proposed meetings and deliverables.

Project Deliverables:

- Deliverable #1: Annotated Data Dictionary for Bus Stop Field Survey
- Deliverable #2: Overview of Existing ADAAG and PROWAG Guidelines
- Deliverable #3: Bus Stop Existing Conditions Summary Overview
- Deliverable #4: Bus Stop Guidelines for Passenger Amenities and Improvements
- Deliverable #5: Bus Stop Improvement and Location Recommendation Summary
- Deliverable #6: Bus Stop Profiles
- Deliverable #7: Mapping Data, GIS Data, and Other Relevant Native Files
- Deliverable #8: Final Report

Figure 2: Project Schedule

