Methodology for Prioritizing Pedestrian Projects

Chapter 3

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PEDESTRIAN PRIORITY INDEX

Future pedestrian improvements in Ada County should be prioritized so ACHD can effectively implement the PBTP recommendations. The prioritization method must consider the *relative cost* of *needed pedestrian improvements* to maximize the public's investment within Ada County *areas that require higher levels of pedestrian accessibility*. ACHD's Pedestrian Priority Index (PPI) was based on separate index measures for:

Attributes

The summary and evaluation of existing sidewalks and curb ramps identified for each pedestrian attribute is given a condition rating, ranging from very poor to good or excellent (see *Chapter 2 – Inventory and Self-Evaluation*). The current pedestrian system attributes in the poorest condition (or missing) were scored highest in the *Attribute Index* as the segments in greatest need for improvement.

Accessibility

The closer that needed pedestrian improvements projects are located to various important trip generators and transportation facilities, the higher their priority. A series of critical accessibility indices are grouped into a composite *Accessibility Index* to help prioritize improvements.

Benefit-Cost

Relatively lower cost improvement projects that provide the greatest increase in accessibility for the largest number of users should have higher priority (e.g. the greatest number of attribute deficiencies = "need"). The *Benefit-Cost Index* provides an added measure to address pedestrian system improvement costs and help establish consistent priorities.

Point scoring was established– in roughly even thirds - for each index. **Table 3-1** summarizes the component index ratings, point values and scoring values of the combined PPI. A total of 35 points is possible within the *Attribute Index*. Those sidewalks or curb ramps whose attributes are all very poor condition (or missing sidewalks and curb ramps) could be scored as high as 35 points. A total of 35 points is also possible within the *Accessibility Index*. Candidate projects (repair, replace or install new pedestrian facilities) located within all of the critical pedestrian access areas could score as high as another 35 points. The *Benefit-Cost Index* helps normalize the PPI by comparing the estimated cost of

North-end corner needing a curb ramp

Table 3-1 Pedestrian Priority Index Ratings, Point Values and Numeric Scores

Index Criteria	Location Rating	Point Value	Possible Score
ATTRIBUTE INDEX	*Calculation of all Scores Summarizing Rating of Existing Conditions*		35
ACCESSIBILITY INDICES			
Schools	Within ¼-mile radius of school	5	5
Civic Buildings	Within ¼-mile radius of public building	5	5
Parks	Within ¼-mile radius of park	5	5
Mobility-Impaired Residence	Top Third (US Census density*)	5	5
	Middle Third	3	
	Bottom Third	1	
Lower Income Residence	Top Third (US Census density*)	5	5
	Middle Third	3	
	Bottom Third	1	
Transit Route Bus Stops	Within 1/8-mile of new ValleyRide Bus Stops	5	5
Arterial Streets	Located within 1/16-mile of Arterial	5	5
COMPOSITE ACCESSIBILITY INDEX			35
SUBTOTAL POINTS			70
BENEFIT-COST INDEX	*SUBTOTAL Points Divided by Project Cost Score is …*		30
	Highest 33% point/cost (HIGH priority)	30	
	Middle 33% point/cost (MODERATE priority)	15	
	Lowest 34% point/cost (LOW priority)	5	
COMPOSITE PEDESTRIAN PRIORITY INDEX			100

* 2000 US Census housing, Block Group geography for both low-income and mobility-impaired housing. "Density" values derived by dividing US Census housing data by area (square miles), then dividing "density" range into even thirds.

improvements to their relative location (Accessibility Index) and need (Attribute Index). Relatively lower cost pedestrian improvements that yield high benefits to pedestrians in critical access areas could score as high as another 30 points.

Although cost is important, it has a slightly lower weight than either the attribute or accessibility scores. This was done purposefully to give equal weighting to the attribute and accessibility score, and have cost be a potential determining factor to break a tie for comparable projects in the PPI.

Finally, a relatively low-cost, new sidewalk (where sidewalks are missing) located within each of the accessibility indices could be scored as high as 100 total PPI points.

The individual accessibility indices and *Benefit-Cost Index* are described in this section.

DEFINING THE ACCESSIBILITY INDICES

A range of spatial index measures were developed to identify and quantify critical pedestrian access issues. Access at the pedestrian trip ends (origins and destinations) and pedestrian access to critical transportation system features (bus transit and arterial streets) were developed based on currently available technology (ACHD GIS database) and relevant data information (2000 US Census and ACHD GIS data).

Schools

Many students walk or ride bicycles on the sidewalks to school. Students, particularly younger children, are among the most vulnerable pedestrians. Areas around schools, where student pedestrians congregate, require special attention in the form pf pedestrian facilities and safety measures. As such, areas within a quarter-mile of all schools were assigned an accessibility index value of five.

Civic Buildings

Access to public buildings is a critical component to the ADA Title II. Libraries, court houses and other public buildings provide a wide-range of services to children, senior adults, and mobility-impaired residents. Areas within a quarter-mile of these facilities have been assigned an accessibility index value of five.

Parks

Parks attract recreational users of all ages. Pedestrian access and safety facilities are essential to park accessibility. Some linear parks and greenways also include multi-use trails that provide critical transportation connections for pedestrians and cyclists. Accordingly, areas within a quarter-mile mile of parks and greenways have been assigned an accessibility index value of five.

Mobility-Impaired Residents

Mobility-impaired residents require greater accessibility measures, especially within their immediate residential neighbor hoods. The 2000 US Census enumerates the number of mobility-impaired residents by Block Group-level geography. Residential density values were effectively calculated using the ACHD GIS database to derive a range in mobility-impaired residency, by block group. This density range was divided into even thirds to quantify the variation in mobility-impaired residential density. Residential areas with more mobility-impaired residents were scored higher, and assigned an accessibility index value of five. Those areas with lower levels of mobility-impaired residents were scored with either 3 or 1.

Lower Income Residents

Lower income families are much more likely to rely on walking and public transportation for their travel needs, and also require greater

accessibility measures within their neighborhoods. Some residents may be dependent on these modes for travel to work and for achieving financial independence. The 2000 US Census enumerates the number of low-income residents by Block Group-level geography. Residential density values were effectively calculated using the ACHD GIS database to derive a range in low-income residency, by block group. This density range was divided into even thirds to quantify the variation in low-income residential density. Residential areas with more low-income residents were scored higher, and assigned an accessibility index value of five. Those areas with lower levels of low-income residents were scored with either 3 or 1.

Public Transit Bus Stops

Valley Regional Transit (VRT) provides public bus transit service under "ValleyRide." Almost all of the ValleyRide bus riders begin and end their trips as pedestrians or will access the bus at stops requiring pedestrian facilities. Safe and continuous pedestrian facilities that link the bus stops to the surrounding area are an integral component of the public transit system. VRT is presently planning to revise and restructure its current route and service operations. The new plan will identify specific bus stops at regularly spaced intervals, which will replace the current "flag-stop" system. ACHD assisted VRT in the evaluation of the new bus stop locations, by developing and conducting a GPS-based inventory of existing pedestrian facilities, similar to the one developed as part of the PBTP. This additional information was added to the PBTP study, with specific locations identified for new bus stops along all of ValleyRide routes. Areas within 1/8-mile (general mid-point delineation between planned bus stops at ¼-mile spacing) of the new ValleyRide bus stops have been assigned an accessibility index value of five.

Arterial Streets

Arterial streets are the major thoroughfares in the ACHD system and provide area access to many major destinations like major shopping centers, employment centers and medical facilities. In addition, arterial streets typically carry higher vehicular volumes at higher speeds. These characteristics intensify the need for separate pedestrian access and safety facilities. Without them, arterial streets become significant barriers to pedestrians of all kinds, but especially to the mobility-impaired. Areas within 1/16-mile of arterial streets (to focus on sidewalks immediately adjacent to or connecting to arterial streets) are scored with an accessibility index value of five.

BENEFIT-COST INDEX

A benefit-cost ratio was calculated for each possible pedestrian improvement by dividing the PPI subtotal of points (combined Attribute/Composite Accessibility Index scores) by the estimated cost of the project (sidewalks and/or ramps). The range in benefit-cost ratios was divided into even thirds, by priority. *Benefit-Cost Index* point values were then derived from the priority ranges as indicated in **Table 3-1**. Possible projects with the highest ratios were assigned 30 points as high priority in the *Benefit-Cost Index*. Moderate benefit-cost ratios and priorities were assigned 15 points. Low benefit-cost ratios (low priorities) were assigned 5 points.

Planning-Level Cost Estimates

A set of planning-level unit cost measures were prepared within the ACHD GIS database to help estimate the cost of future pedestrian improvements in Ada County. These costs are not necessarily reflective of actual costs, but provide a comparative basis for establishing priorities and evaluating future programs. All possible pedestrian system improvements were assigned a planning-level cost estimate. The unit costs were based on recent roadway and sidewalk improvement projects completed by ACHD. **Appendix C** includes a summary of the unit costs estimates used to develop the planning-level costs of possible pedestrian improvements. All costs were based on 2004 dollars and do not include right-of-way costs assuming that most improvements are within existing right-of-way. **Table 3-2** summarizes the unit cost estimates.

COMPOSITE PPI

A *Composite Pedestrian Priority Index* (PPI) was calculated for each possible pedestrian improvement based on the total scores from each of the three indices: *Attribute*, *Accessibility* and *Benefit-Cost*. A Composite PPI score of 100 is possible, but not likely because there are no locations in Ada County where all seven of the *Accessibility Indices* overlap. All *Index* values, including the *PPI*, are stored in the ACHD GIS database for further use in project evaluation and prioritization.

Table 3-2 Planning-Level Unit Costs

Improvement	Unit Cost
Curb Ramps	***Per Ramp***
Perpendicular (two ramps per corner)	$1,105
Diagonal, Parallel and all Others (usually single ramps)	$715
Sidewalks	***Per Lineal Foot***
Sidewalk, Curb, Gutter & Drain	$250
Sidewalk, Curb & Gutter	$160
Sidewalk Only	$30

IDENTIFYING PEDESTRIAN IMPROVEMENT PROJECTS AND THEIR PRIORITIES

Those potential sidewalk or curb ramp improvements with the highest Composite PPI score should have the highest priority for future project completion. The Composite PPI was applied to all sidewalk segments and curb ramp locations, including missing sidewalk segments and missing curb ramps. Four priority levels were assigned to all possible pedestrian improvements, as summarized in **Table 3-3**.

GIS Database Applications

A series of interim queries of the ACHD GIS database were made to ensure that the definition and selection of pedestrian improvement project priorities do not duplicate or double-count projects already identified in ACHD's 2003 CIP. All possible project priorities along Idaho Transportation Department (ITD) facilities were also flagged and removed from the Plan summary, even though in some cases the pedestrian system GPS inventory covered several ITD routes.

Table 3-3 Pedestrian Improvement Priorities

Priority	Composite PPI Score
High	76-100
Moderate	51-75
Low	26-50
Lowest	1-25

ACHD's functional classification of streets was applied to all project priority summaries. The initial summary of project priorities revealed a significant number of local street improvements. Upon further review and evaluation of the ACHD street functional classification scheme, the *local* street class varies significantly throughout Ada County. Currently, there are many *local* streets that provide neighborhood circulation and access, with connecting lengths in excess of ¼-½-miles. These streets provide a greater neighborhood circulatory and mobility function, especially for pedestrians, but are lumped into the same class as cul-de-sacs (which provide only direct access to a very limited number of homes). As such, a new street class called "*Neighborhood Connector*" was introduced to the GIS database, designating those neighborhood routes which provide greater mobility function than *local* streets, but not as much as *collector* streets. In many cases these streets link neighborhoods with schools, parks and commercial centers.

It should be noted that the *neighborhood connector* is not currently adopted by ACHD as part of their Policy Manual or as part of the COMPASS Regional Functional Classification system. ACHD is currently researching its functional

classification policy and may eventually adopt a policy revision that reflects additional street classes like the *neighborhood connector*.

Use of the neighborhood connector street class was applied in this study for the sole purpose of better distinguishing local street pedestrian priorities.

Pedestrian Improvement Needs for Full ADA Compliance

The cost to build new and improved sidewalks and curb ramps compliant with the ADA is estimated at about $292.5 million. **Table 3-4** and **Figure 3-1** summarize these pedestrian improvement cost estimates by priority and improvement type. *High* priority pedestrian improvement projects in the Ada County urban areas are estimated to cost about $37.4 million, all of which are either new sidewalks or new curb ramps. New sidewalk improvement costs also comprise a large portion of the *Moderate*

Figure 3-1: Pedestrian Improvement Costs

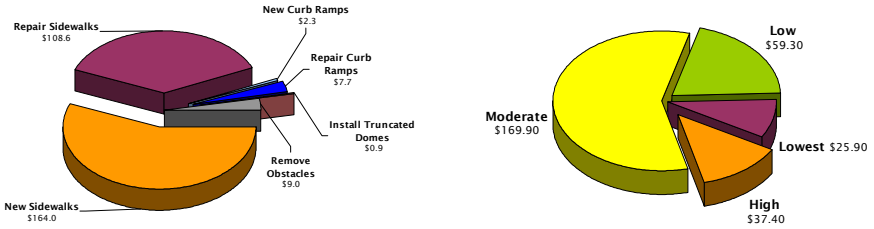

Table 3-4 Pedestrian Improvement Costs (2004 dollars, in millions)

Pedestrian Improvements	Priority				
	High	Moderate	Low	Lowest	TOTAL
New Sidewalks	$ 35.9	$ 128.1			$ 164.0
Sidewalk Repairs		$ 35.1	$ 51.5	$ 22.0	$ 108.6
New Curb Ramps	$ 1.5	$ 0.8			$ 2.3
Curb Ramp Repairs		$ 2.1	$ 3.4	$ 2.2	$ 7.7
Install Truncated Domes		$ 0.1	$ 0.2	$ 0.6	$ 0.9
Remove Obstacles		$ 3.7	$ 4.2	$ 1.1	$ 9.0
PBTP Subtotal	**$ 37.4**	**$ 169.9**	**$ 59.3**	**$ 25.9**	**$ 292.5**
ACHD CIP (2003-2023) - Sidewalk Improvements					**$ 70.0**
TOTAL					**$ 362.5**

priorities. Sidewalk repair improvements total almost $110 million and are roughly spread across the *Moderate* to *Lowest* priorities.

In addition to those pedestrian system improvement costs identified in Table 3-4, ACHD is also making considerable investment in sidewalk improvements as part of its Capital Improvement Plan (CIP). Between 2003 and 2023 ACHD is expecting to construct about $70 million (about 22% of the CIP total — $345 million) in sidewalk improvements along arterial streets within the urbanizing areas of Ada County.

High Priority Pedestrian Improvement Projects

As shown in **Table 3-5,** the high priority pedestrian improvement projects in the Ada County urban areas are estimated to cost about $37.4 million. These improvements include new sidewalks and curb ramps, and sidewalk and curb ramp repair projects in critical areas. Most of the high priority projects are located on *local* and *arterial* streets, many of which provide direct connection to other arterial and collector streets, or link major pedestrian trip generators (see **Appendix C** for mapping of the high priority projects).

Table 3-5 High Priority Pedestrian Improvements (2004 dollars, in millions)

Pedestrian Improvements	Priority by Street Class				
	Arterial	Collector	Neighborhood Connector	Local	TOTAL
New Sidewalks	$ 8.72	$ 2.06	$ 1.18	$ 23.96	$ 35.92
Sidewalk Repairs		$ 0.01			$ 0.01
New Curb Ramps	$ 0.14	$ 0.25	$ 0.28	$ 0.79	$ 1.46
Curb Ramp Repairs	$ 0.01	$ 0.01		$ 0.01	$ 0.03
TOTAL	$ 8.87	$ 2.33	$ 1.46	$ 24.76	$ 37.42

New Sidewalks

Installing new sidewalks along critical street corridors helps remove significant obstacles to pedestrians of all types. Those streets that currently do not have sidewalks on one or both sides of the street were identified in the Plan for the installation of new sidewalks.

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Sidewalk Repairs

Reconstructing existing sidewalks with significant structural problems can greatly improve pedestrian safety and access, particularly for the young, elderly and mobility-impaired pedestrians. Existing sidewalks were identified for reconstruction if they are currently rated with either (a) significant-extreme heaving and cracking, (b) substandard width (less than four feet in width), or (c) below average or very poor surface condition.

New Curb Ramps

Installing new curb ramps in critical locations will significantly remove obstacles for the mobility-impaired pedestrian. Those street corners that currently do not have curb ramps (but are otherwise served by compliant sidewalks) were identified in the Plan for the installation of new curb ramps.

Curb Ramp Repairs

Many of the area's older curb ramps are in such poor condition that they are more a hindrance and barrier to pedestrians than they are helpful. Through reconstruction these curb ramps can provide the needed safety and access improvements for the mobility-impaired and others. Existing curb ramps were identified for reconstruction if they are currently rated with either (a) very poor surface condition, (b) non-compliant ramp width (less than three feet wide), (c) non-compliant top landing (missing or less than 3 feet wide), or (d) non-compliant ramp slope (8.4% or greater).

Other types of pedestrian improvement projects that were not scored as *high* priority include Remove Obstacles and Install Truncated Domes. These were scored as moderate or low/lowest priorities.

Remove Obstacles

Many existing sidewalks either have fixed obstacles within them that

limit the pedestrian clear space. Other sidewalks were constructed with driveway crossings that do not provide a sufficiently flat surface for suitable access by wheelchair users. These obstacles can be removed by constructing additional sidewalk surfaces to increase the pedestrian clear space (minimum of four feet) on a relatively flat surface (2 percent slope or less).

Install Truncated Domes

Many existing curb ramps are ADA-compliant except they lack detectable warning devices. The addition of truncated domes will address recent ADAAG rulings. The application of adhesive-backed dome sheets twill help address ADA requirements.

USING THE PEDESTRIAN PRIORITY INDEX

The PPI provides ACHD with an objective methodology for selecting and prioritizing pedestrian system improvements. This methodology provides an initial basis for project identification as input into ACHD's Five-Year Work Program (FYWP). However, professional judgment will always be required to select appropriate projects. Other factors will likely need to be evaluated by ACHD, including:

- relationship to other CIP and FYWP projects
- special grant application projects
- pending development projects
- prevailing site conditions

See *Chapter 6 - Recommended Measures to Implement the PBTP* for further recommendations regarding pedestrian project funding and the FYWP.

It is recommended that the PPI calculation be reviewed and updated every three years, concurrently with the 3-year update

of ACHD's CIP. In this manner ACHD can incorporate the completion of non-impact fee eligible sidewalks and bikeways that are installed with roadway widening or new street projects identified in the CIP. Doing so will ensure that the pedestrian priorities reflect pedestrian and street project completion, new development or other land use changes in Ada County. Because the PPI characteristics and numeric values themselves may need to be refined over time, it is recommended that they be reevaluated at least every three years.

Additionally, the GIS database will need to be updated at least annually to incorporate all newly-constructed ACHD projects and new developments. It should also be noted that new developments that have been constructed since the PBTP data inventory may not be compliant with the ADA, since ACHD's current policies have not required ADA compliant installation.

Areas for Future PPI Enhancements

For the first time ACHD has a comprehensive database and methodology to identify and prioritize long-range pedestrian improvements. The PPI is also structured to be amended, with relative ease, to include new or more refined measures. Following the initial implementation of the PPI, ACHD should conduct further evaluation of other possible measurements as more data is available, including:

- Hospitals, emergency care and other site-specific medical facilities
- Site-specific Senior and Assisted-Living Facilities
- Safe-Route-To-School Priority Corridors (see *Chapter 6 – Recommended Measures to Implement the PBTP*) in conjunction with the appropriate school district
- A hierarchy of schools, ranking those facilities of with specific needs (e.g. grade and middle schools, high schools, colleges and universities)
- Access to specific gateways or access points to the greenway trails and multi-use path system
- A hierarchy of civic buildings, ranking those facilities of heavier public use and need (e.g. courthouses, city halls, health & human services, employment centers)