

MISSING SIDEWALK SEGMENTS

There are numerous missing sidewalk segments within the City limits of Cedar Rapids that need to be installed. For the purpose of this report, the missing segments were divided into three (3) categories.

- Assessment agreement segments
- Gaps
- Missing segments

Each of these are described in more detail below.

ASSESSMENT AGREEMENT SEGMENTS

There are numerous locations in Cedar Rapids that do not currently have walks, but do have an agreement by the property owner to install the walk at such time it is requested to do so by the City.

City staff should develop a system to actively track these locations and make recommendations when the walk becomes desirable. When a development is completed, the adjacent sidewalks should become a high priority and their installation pursued as soon as they can be funded.

GAPS

One portion of the pedestrian sidewalk system that requires installation is the “gaps”. A sidewalk gap is defined as a segment 250-foot or less in length that connects two existing sidewalks. Filling of gaps tends to have high use due to the connectivity they bring to the system. (See Appendix F: Figure 3)

Typically, gaps are in existing subdivisions on lots that have not yet experienced construction. The subdivision requirements typically require these walks to be installed within a specified time frame. Because these gaps tend to be important and may have assessment agreements in place they were separated from the longer missing walk segments.

The same prioritization criteria was applied to both gaps and missing segments to provide some guidance on prioritization of gap construction projects.

It is estimated there are approximately 321 gaps consisting of 50,000 lineal feet. The estimated



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Prioritization Process and Criteria

The overarching goal of the prioritization process was to create a decision-making apparatus in order to best allocate sidewalk construction funds. As such, it sought to identify locations with the greatest needs and those that would benefit the greatest number of people to make Cedar Rapids a safe, pedestrian-friendly, and walkable community.

Development of the Prioritization Process

The prioritization process was developed by the review of numerous other Sidewalk Master Plans and then adapting the selected criteria to the City of Cedar Rapids.

The Sidewalk Advisory Committee felt strongly that the prioritization should favor those areas that serve members of the community that are currently using pedestrian facilities, either by choice or by necessity. (See Appendix F: Figures 4 and 5)

An on-line survey was initiated on April 22, 2010 on the Cedar Rapids Public Works Department website to obtain public input and responses on the prioritization process and areas that would benefit from the addition of sidewalks. The survey results were collected through September 24, 2010. Due to the low number of responses (54±), the on-line survey had limited effectiveness. (See Appendix D)

Future Considerations

As a result of the June 2008 flooding and other initiatives in Cedar Rapids there are numerous other public planning processes that will impact pedestrian facilities in Cedar Rapids. These include, but may not be limited to the following:

- Neighborhood Planning Process
- Trails Master Plan
- Parks Master Plan
- School System Planning Process
- Transit System Changes

All of these should be considered in future Sidewalk Master Plan updates.

Priority Criteria

The prioritization process used a weighted system of three Priority Criteria. The prioritization process was applied to all segments in Cedar Rapids that lacked continuous standard walkway facilities, such as sidewalks or pathways. These criteria are as follows:

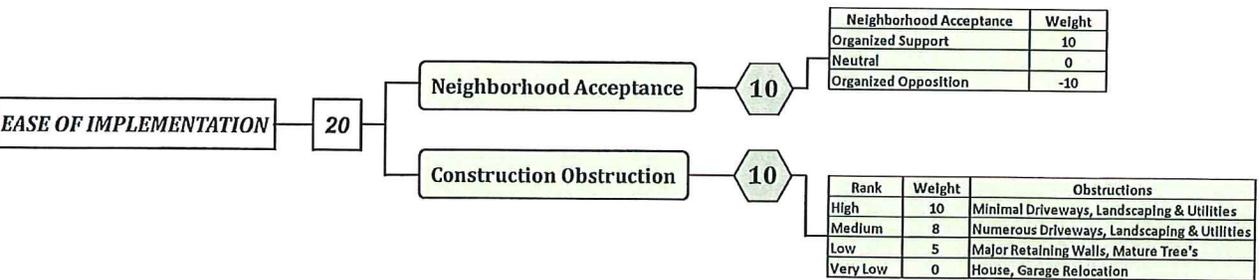
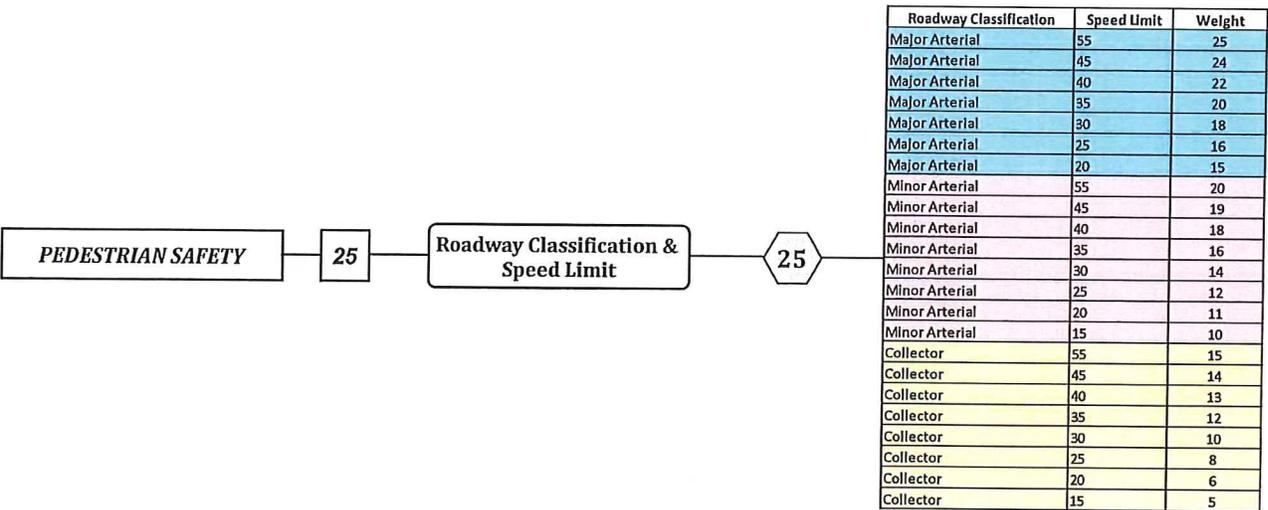
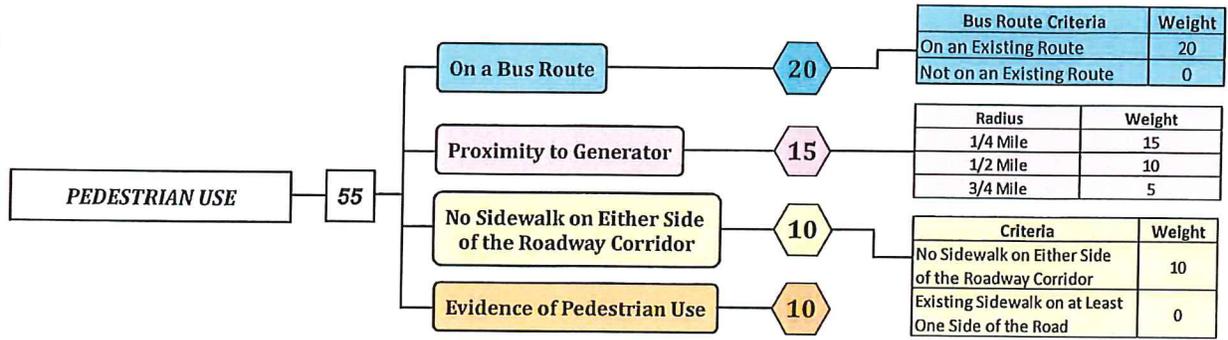
- Pedestrian Use
- Pedestrian Safety
- Ease of Implementation

The ranking created an initial assessment of walkway conditions and needs in Cedar Rapids. The Priority Criteria and weighting system are discussed in more detail below and summarized in Figure 6 (following this page and also included in Appendix F).

Coordination with the Trails Master Plan

As a part of this Master Plan, the segments that are currently included in the City of Cedar Rapids Trails Master Plan were eliminated from consideration as sidewalks. Typically, trails function well as walks, but walks do not serve as trails so the Trails Master Plan identified alignments that take priority over the Sidewalk Master Plan alignments.

CRITERIA FLOW CHART



CRITERIA FLOW CHART **FIGURE 6**

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Pedestrian Use

The first key ranking criteria is how much use a potential pedestrian facility will get. Without a workable pedestrian traffic projection model the best estimate of pedestrian use is proximity to generators, bus routes, access to a walk across the street, no sidewalk on either side of the roadway, and evidence of pedestrian use. Sidewalk rankings were weighted so that roadways close to generators received a higher ranking.

This criterion had a maximum of 55 points and was evaluated using four sub-categories, proximity to generators, bus routes, no sidewalk on either side of the roadway, and evidence of pedestrian use.

On a Bus Route

In order to effectively use the bus system in Cedar Rapids it is necessary for the majority of users to be able to safely and effectively walk to the bus stop from their homes and from the drop off point to their destination. Bus routes are typically assigned to service populations that lack access to vehicles. Therefore, the bus routes are a strong indicator of areas with significant pedestrian trips. (See Appendix F: Figure 7) The ranking for bus routes is as follows:

**Table 5
ON A BUS ROUTE**

Bus Route Criteria	Weight
On an existing route	20
Not on an existing route	0



6th Street SW (near HACAP)

Proximity to Generators

Generators were identified as those facilities that provide access to important pedestrian destinations, such as schools and public service organizations. The identification of these generators was born from input from citizens, Staff, and the Sidewalk Advisory Committee.

Segments were analyzed to determine if they were within ¼-mile, ½-mile, or ¾-mile of the destinations listed in Appendix E.

The weighting calculated the number of destinations as follows:

**Table 6
PROXIMITY TO GENERATORS**

Proximity to Generator	Weight
¼-mile	15
½-mile	10
¾-mile	5

Other generators such as churches, parks, retail shopping centers, etc. were considered, but if all of these are considered almost the entire city is covered making the prioritization process ineffective. (See Appendix F: Figure 8)

No Sidewalk on Either Side of the Roadway

Areas were analyzed that have no sidewalk on either side of the roadway corridor (See Appendix F: Figure 9). These are areas that force pedestrians to either walk on the road (depending on traffic volumes) or walk in the grass to either side of the roadway.

The ranking for no sidewalks to either side of the roadway are as follows:

**Table 7
NO SIDEWALK ON ROADWAY**

Proximity to Generator	Weight
No sidewalk on either side of the road	10
Existing sidewalk on at least one side of the road	0

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Evidence of Pedestrian Use

The final pedestrian use criteria is actual evidence of pedestrian use. (See Appendix F: Figure 10) Segments that have specific evidence of use by pedestrians should have a high prioritization. Each segment with evidence of use was assigned 10 points.

The criteria are as follows:

- Actual “dirt path” on the ground evidence
- Observed use
- Direct requests to City staff
- Survey responses to areas of pedestrian use



Pedestrian Safety

One of the key criteria for prioritizing the construction of new walks is pedestrian safety. Accident history for the period 2001 to 2009 was reviewed for problem areas or any patterns that might indicate a way to prioritize new walk locations. The only significant cluster of pedestrian or bicycle accident history is on 1st Avenue near the Hy-Vee at 15th Street NE. In general, pedestrian accidents were scattered around town with most occurring where walks already exist.

Roadway Classification and Speed Limits

One indication of safety is the roadway traffic volumes and speed. Typically, higher volumes and speeds result in more severe pedestrian / vehicle accidents. For the purpose of this report, the roadway classification (see Appendix F: Figure 11) and speed limits were used for pedestrian safety criteria with the prioritization points being assigned as follows:

**Table 8
ROADWAY CLASSIFICATION & SPEED LIMITS**

Proximity to Generator	Speed Limit	Weight
Major Arterial	55	25
Major Arterial	45	24
Major Arterial	40	22
Major Arterial	35	20
Major Arterial	30	18
Major Arterial	25	16
Major Arterial	20	15
Minor Arterial	55	20
Minor Arterial	45	19
Minor Arterial	40	18
Minor Arterial	35	16
Minor Arterial	30	14
Minor Arterial	25	12
Minor Arterial	20	11
Minor Arterial	15	10
Collector	55	15
Collector	45	14
Collector	40	13
Collector	35	12
Collector	30	10
Collector	25	8
Collector	20	6
Collector	15	5

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Ease of Implementation

The third ranking criteria is ease of implementation. This criteria is intended to adjust the rankings so limited resources are targeted for maximum benefit. In other words, the most economical areas are targeted first to get the maximum benefit for the dollars expended. The ease of implementation criteria is divided into two subcategories: construction obstructions and neighborhood acceptance.

The degree of difficulty in constructing a walk can vary significantly depending on the site. The ranking system is established as follows:

The first ease of implementation criteria is neighborhood acceptance. Many neighborhoods without existing walks are opposed to their construction. Although it is important that walks be constructed in all locations to make Cedar Rapids a more walkable community it is acknowledged that strong neighborhood opposition can make the projects much more difficult. On the other hand, strong neighborhood support can significantly increase the project success. Neighborhood acceptance is ranked as follows:

**Table 9
NEIGHBORHOOD ACCEPTANCE**

Proximity to Generator	Weight
Organized support	10
Neutral	0
Organized opposition	-10

The second ease of implementation criteria is the existence of physical barriers and/or obstructions and availability of off-street space for a standard walkway. Lower cost obstructions and the availability of space for a standard walkway resulted in a higher rating. Points were assigned as follows:

**Table 10
BARRIERS & OFF-STREET SPACE**

Proximity to Generator	Weight	Obstructions
High	10	Minimal driveways, landscaping, and utilities
Medium	8	Typical driveways, landscaping, and utilities
Low	5	Major retaining walls, mature trees
Very Low	0	House, garage relocation

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Rankings Overview

Each roadway segment was ranked using the prioritization process, as detailed previously. It was found that the 3,700 segments ranked from a high of 87 to a low of 8. Each segment was placed into one of three ranking groups: High, Moderate, or Low.

Due to fiscal constraints, physical obstructions and politics, standard sidewalk installations may not be possible or desirable on every roadway. This may be the case on streets with very low vehicle volumes and limited access, such as cul-de-sacs or dead end roadways. In other instances, standard sidewalks may be installed in spite of property owner objections because of overriding considerations for the importance of implementing a cohesive pedestrian network.

Generally, sidewalks shall be provided on at least one side of the roadway, preferably on both sides wherever possible. In accordance with current Cedar Rapids policy, the walks shall be 4-foot, 5-foot, or 6-foot wide depending on the adjacent roadway classification. A buffer zone between the sidewalk and roadway is recommended for pedestrian safety and comfort, and to provide for snow storage. The buffer recommendation is 8-foot wide, with a 5-foot minimum. Sidewalks typically consist of concrete. Generally, vertical curbs and gutters are recommended to dissuade vehicles from parking or driving in the pedestrian right-of-way. Sidewalk installations at intersections will also require pedestrian curb ramps with high contrast, detectable warnings, as per the Americans with Disabilities Act (ADA).

Other Considerations

Local Streets

Local streets with very low traffic volumes and slow speeds may be able to accommodate pedestrians without the addition of sidewalks.

Although walks are desirable in all locations, the significant area without walks make it necessary to prioritize and it is unlikely walks will ever be installed on the low priority corridors.

The corridors without walks should encourage the safe use of the street, including slow speeds and on-street parking coordination.

Costs

Cost estimates were calculated assuming four, five, or six-foot wide sidewalks to be installed where there are currently no sidewalks. Also included in the estimated cost is curb ramps with truncated domes at the intersection corners, driveway replacements, grading, minor retaining walls, and restoration.

All costs were estimated from the average of several project bids, are based on 2010 dollars, and are at a planning level. Amounts are subject to further refinement once feasibility and engineering work has been completed, or as budget conditions change within the City. Furthermore, as time goes on, adjustments should be made for increases in construction due to inflation and the rising costs of materials. As a benchmark, the City typically considers a 3% per year inflation factor in project cost estimates.

The estimated cost for sidewalk construction is presented in the table below. These costs are the basis for the planning-level estimates used in this report.

Table 11
SIDEWALK CONSTRUCTION COST

Item	Unit	Unit Cost
Sidewalk – Typical	LF	\$82.00
Sidewalk – Arterial (6' wide)	LF	\$100.00

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Cost estimates were calculated assuming the typical sidewalk costs. Additionally, it was estimated that curb ramps with truncated domes would need to be installed at the intersection corners for each segment requiring sidewalks. Other amenities such as pedestrian-scaled lighting may be installed on roadways with more pedestrian volumes, which would increase project costs. The estimated total cost to install sidewalk on all areas missing walk in Cedar Rapids is reflected in Tables 12 and 13 below.

Next Steps

Street segments prioritized and listed as high priority should serve as a platform for discussion. However, there may be other considerations to take into account that the prioritization process didn't uncover. The next steps may include re-ordering prioritized rankings due to ease of implementation, developing detailed design plans and cost estimates for proposed projects each fiscal year, and conducting surveys to gauge community support.

**Table 12
MISSING WALKS**

Priority	Number of Segments	Length (ft)	Percent of Total Length	Estimated Cost
High	284	242,055	10%	\$20,000,000
Moderate	1,435	967,503	40%	\$80,000,000
Low	1,953	1,208,816	50%	\$100,000,000
Total	3,672	2,418,374	100%	\$200,000,000

**Table 13
GAPS**

Priority	Number of Segments	Length (ft)	Percent of Total Length	Estimated Cost
High	321	50,000	50%	\$2,050,000
Medium			50%	\$2,050,000