# Town of Battle Ground Sidewalk Condition Survey

March 9, 2020

Prepared by the Area Plan Commission of Tippecanoe County

# Town of Battle Ground

## Tippecanoe County, Indiana

*Sidewalk Condition Survey*
*Performed by the Area Plan Commission of Tippecanoe County*

*This document has been financed in part through a grant from the Federal Highway and Federal Transit Administrations. The contents of this report do not necessarily reflect the official views or policies of the US Department of Transportation.*

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## Purpose of the Survey

Like many other communities throughout the State, town councils and boards are looking more closely at sidewalks. This is a recognition of a national trend that its citizens are very interested in walking and exercising. The benefits of having good sidewalks are many and include improving an individual's health and well-being and transforming towns and cities into a vibrant place to live.

The Battle Ground Town Council has decided to follow this national trend and look at its sidewalks. The first step is to develop a better understanding of the current existing conditions. This survey provides that information and it specifically points out problematic locations and spots that make them difficult to use. Compliance with ADA requirements can be found in the town's 2012 Transition Plan.

## History & Report Contents

In October, the Town Council asked the Area Plan Commission staff to examine the sidewalks within the town and observe and report on the existing sidewalk conditions. APC staff then field surveyed all existing sidewalks on October 29th and November 4th through the 6th. Information collected was incorporated into a GIS database, analyzed and then this report was prepared. The findings in this report contain a series of analysis maps, charts, tables and images which detail the existing sidewalk conditions within the town.

## Methodology

This survey reports on sidewalk materials and their condition. Each segment was rated on a scale from 1 to 10 based on condition and defects relevant to pedestrians walking. A 10 rating means the sidewalk is in excellent condition while a 1 rating means the sidewalk has failed. Issues such as heaving, cracking, spalling, sinking, missing sections and vegetation all played a role in the rating. The rating scale translates into seven condition categories: excellent, very good, good, fair, poor, very poor, and failed. Detailed information about each condition and how they relate to the one to ten rating scale can be found in the **Appendix**.

There appears to be no formal or nationally adopted rating scale for assessing concrete sidewalk condition. Contacting our local LTAP office confirmed the lack of methodology to conduct such a survey. An internet search found a sidewalk condition study that was conducted for the Town of Whitestown, Indiana, in 2017. The Town hired engineering firm HWC which developed a rating system similar to one used in rating asphalt trails. The rating system is called the modified Pavement

Surface Evaluation and Rating or PASER. A detailed explanation of the rating system with photos showing each condition rating can be found in the **Appendix**.

The condition rating assigned to each sidewalk segment reflects the condition of the segment which was typically between two streets or between a street and an alley. During field observations, APC staff compared the condition of each segment to the modified PASER rating system. Overall the rating system was a good guide in determining the condition. However, there were sidewalk segments where a portion had one condition rating, but the other portion was significantly better or worse. There were also segments where the majority of the segment was assigned one condition rating but there were one or two spot locations significantly worse. In those cases, the segment condition rating was adjusted accordingly to reflect either an average or slightly higher or lower rating.

This report does not include the condition rating of ramps nor is it an ADA compliance survey in which factors such as ramp width, cross slope angle, heaving/slumping height and specific ramp details would have been collected. A detailed ADA study was conducted in 2012 for the Town's Transition Plan.

## Survey Findings

Currently there are 8.36 miles of sidewalk throughout the town. The largest portion, 57.9%, are located in the three residential subdivisions adjacent to CR 600N: Harrison Meadows, Quail Ridge and Shawnee Ridge. The remaining sidewalks, 42.1%, are located in the portion of town both west and east of the CSX Railroad tracks.

Overall the condition of existing sidewalks throughout the town is mostly in good to very good condition. There are five miles of sidewalk that are rated as one of these two conditions. This translates to nearly three-fifths (59.8%) of all the sidewalks within the town. Individually, there are 1.78 miles of sidewalk rated in good condition and 3.22 miles rated in very good condition. **Table 1** lists the number of miles and percentage of sidewalks by condition and **Figure 1** shows the number of miles by condition.

There are over a mile and half of sidewalks rated in excellent condition which is just over eighteen percent (18.2%) of the sidewalks in town.

Nearly a mile (0.92 miles) of sidewalks are rated in fair condition. This is 11.0% of all the sidewalks in town.

**Table 1, Sidewalk Condition by Miles & Percentage**

| Condition | Miles | *Percentage* |
|---|---|---|
| Excellent | 1.52 | *18.2%* |
| Very Good | 3.22 | *38.5%* |
| Good | 1.78 | *21.3%* |
| Fair | 0.92 | *11.0%* |
| Poor | 0.50 | *6.0%* |
| Very Poor | 0.14 | *1.7%* |
| Failed | 0.28 | *3.3%* |
| Total | 8.36 | *100%* |

**Figure 1, Miles of Sidewalk by Condition**

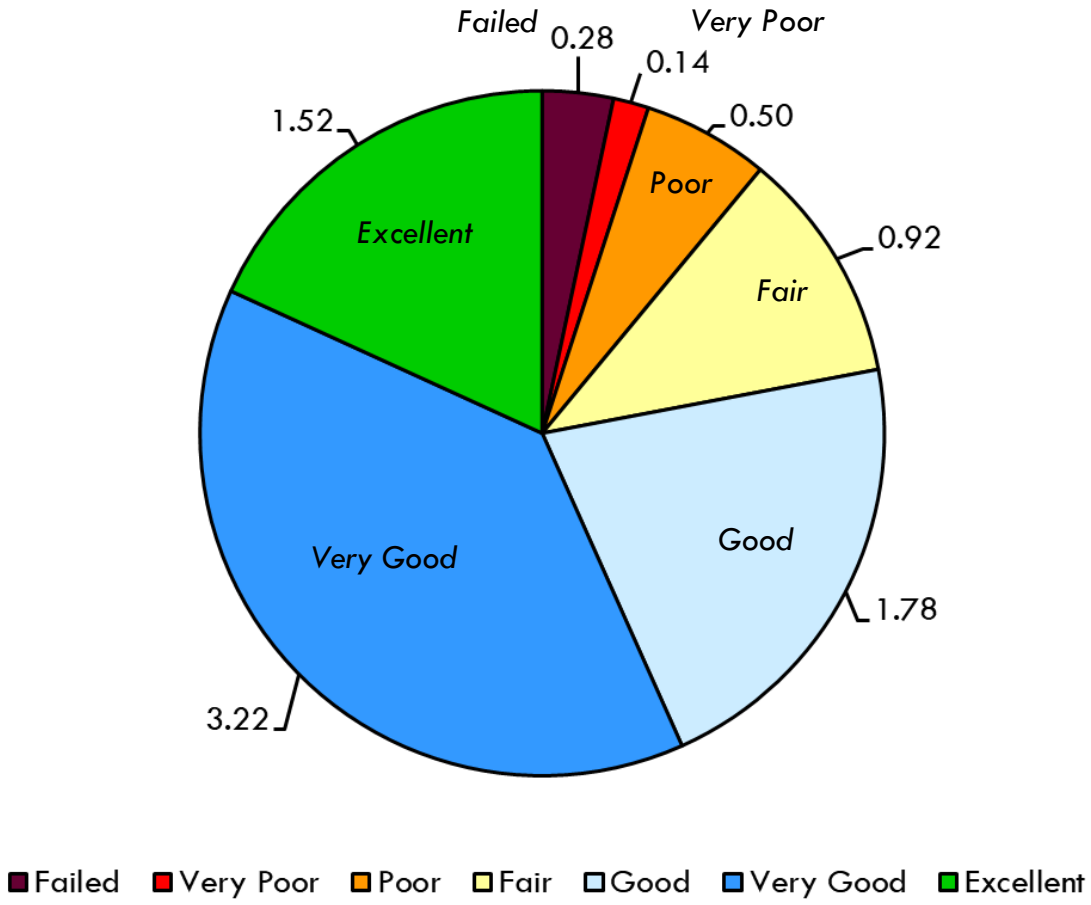



**Table 1** and **Figure 1** shows that there are sidewalks rated in poor and very poor conditions. Over six-tenths of a mile (0.64 miles) were rated as one of these two conditions which is 7.7% of all the sidewalks in town. Individually, there were 0.50 miles in poor condition and 0.14 miles in very poor condition.

Unfortunately, there are sidewalks observed that completely failed. APC staff observed just over a quarter of a mile (0.28 miles) of sidewalks in this condition. This translates to 3.3% of the sidewalks in town.

## Detailed Analysis Including Spot Issues and Hazards

This portion of the report examines the sidewalk conditions in-depth. It identifies specifically where the sidewalks are in poor to very poor condition and where they have failed. Conversely, it shows where they are in very good to excellent condition.

This portion also pinpoints the specific spots or locations that have issues, hazards, barriers, and missing. During the in-field survey, APC noted and commented on locations where there were issues due to heaving, buckling, sinking and cracking. Locations where vegetation and/or trees growing over the sidewalk are noted too. Photos are included to help visualize the issues.

This report divides the town into five areas. Two are located on the eastern side of town while the other three are residential subdivisions off CR 600N. The divider between the two eastern areas is the CSX Railroad tracks. The portion east of the tracks will be referred to as Harrisonville (which is the original town name). The area west of the tracks will be referred to as Old Battle Ground because it was originally the Town of Battle Ground.

### *Harrisonville*

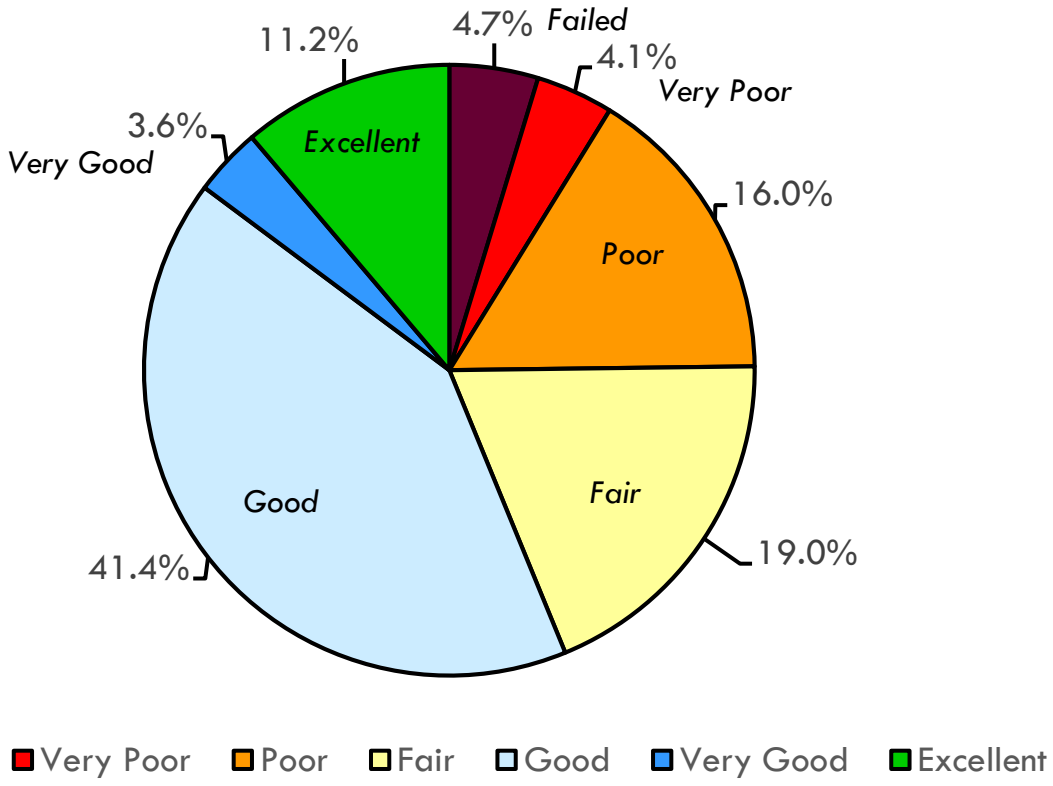
There are 1.69 miles of sidewalk in this portion of town ranging from excellent condition to failing. **Table 2** shows the mileage and percentage of sidewalk by condition and **Figure 2** shows the condition by percentage. Nearly all of the sidewalks in this portion of town are constructed of concrete. There is one small section, on Main Street west of East Street, that is brick.

Overall, the majority of sidewalks, 60.4%, in this area of town are either in fair or good condition with over 40% being in good condition. These sections can be found toward the western end of Main Street, on Jefferson Street, on High School Avenue between Jefferson Street and Tippecanoe Street, on Tippecanoe Street, and along both sides of Tomahawk Lane. **Figure 3** shows the location of these segments.

**Table 2, Sidewalk Condition by Miles & Percentage in the Harrisonville Area**

| Condition | Miles | *Percentage* |
|---|---|---|
| Excellent | 0.19 | *11.2%* |
| Very Good | 0.06 | *3.6%* |
| Good | 0.70 | *41.4%* |
| Fair | 0.32 | *19.0%* |
| Poor | 0.27 | *16.0%* |
| Very Poor | 0.07 | *4.1%* |
| Failed | 0.08 | *4.7%* |
| Total | 1.69 | *100%* |

**Figure 2, Sidewalk Conditions in the Harrisonville Area by Percentage**

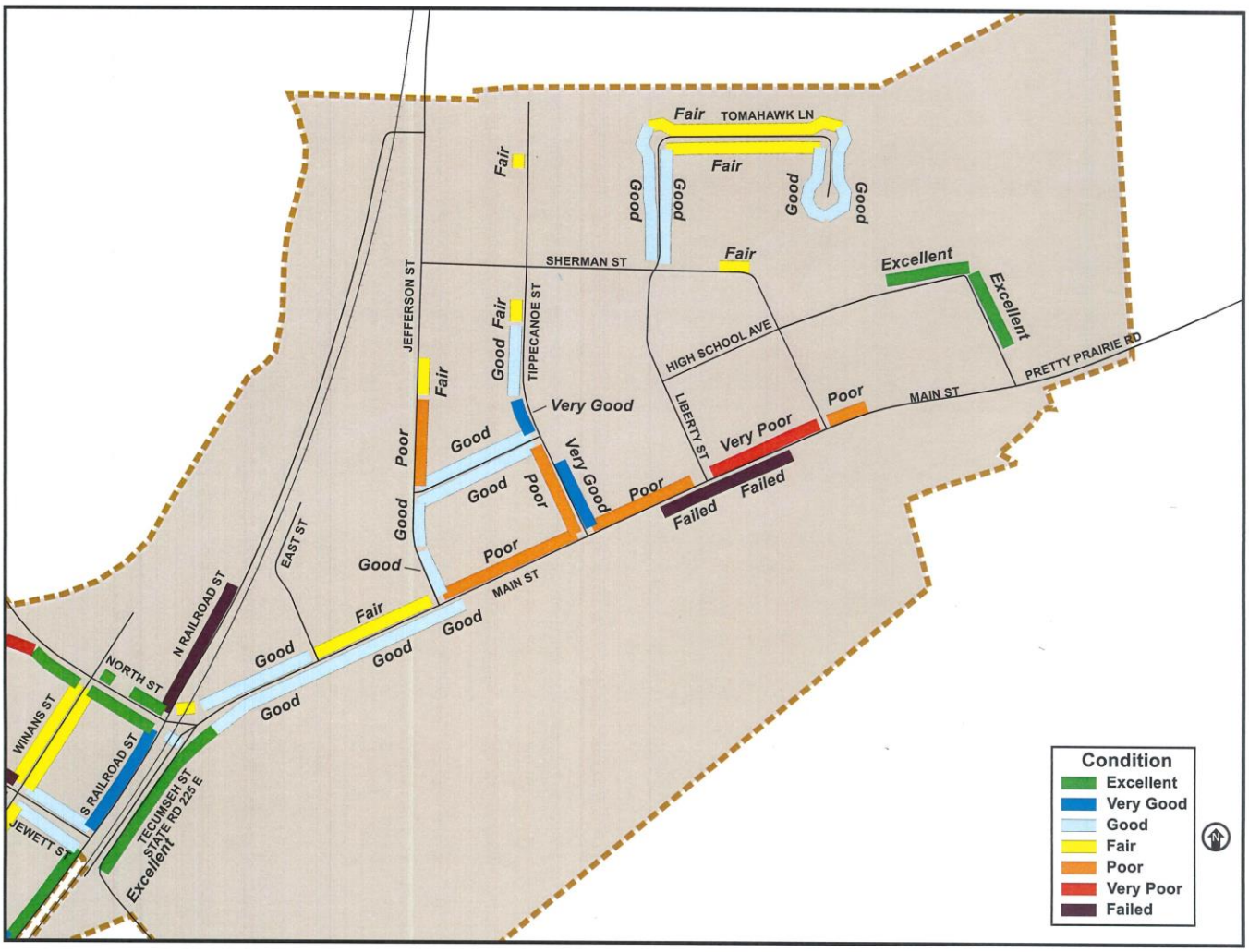



Sidewalks rated very good and excellent are located at three locations: along Tecumseh Street, along Tippecanoe Street and at the very eastern end of High School Avenue. Nearly all of the sidewalks in these three locations appear to be new or fairly new.

Sidewalks rated from poor to failed are found along Main Street and two sections on Jefferson Street and Tippecanoe Street. Nearly a quarter of sidewalks in this

portion of town are found to be in one of these three conditions. The two sections observed that failed are on the south side of Main Street both east and west of Liberty Street. These two sections account for nearly five percent of the sidewalks in this area and nearly a tenth of a mile. The one section of sidewalk rated in very poor condition is in the same area but on the north side of Main Street. Sidewalks both east and west of this location are rated in poor condition.

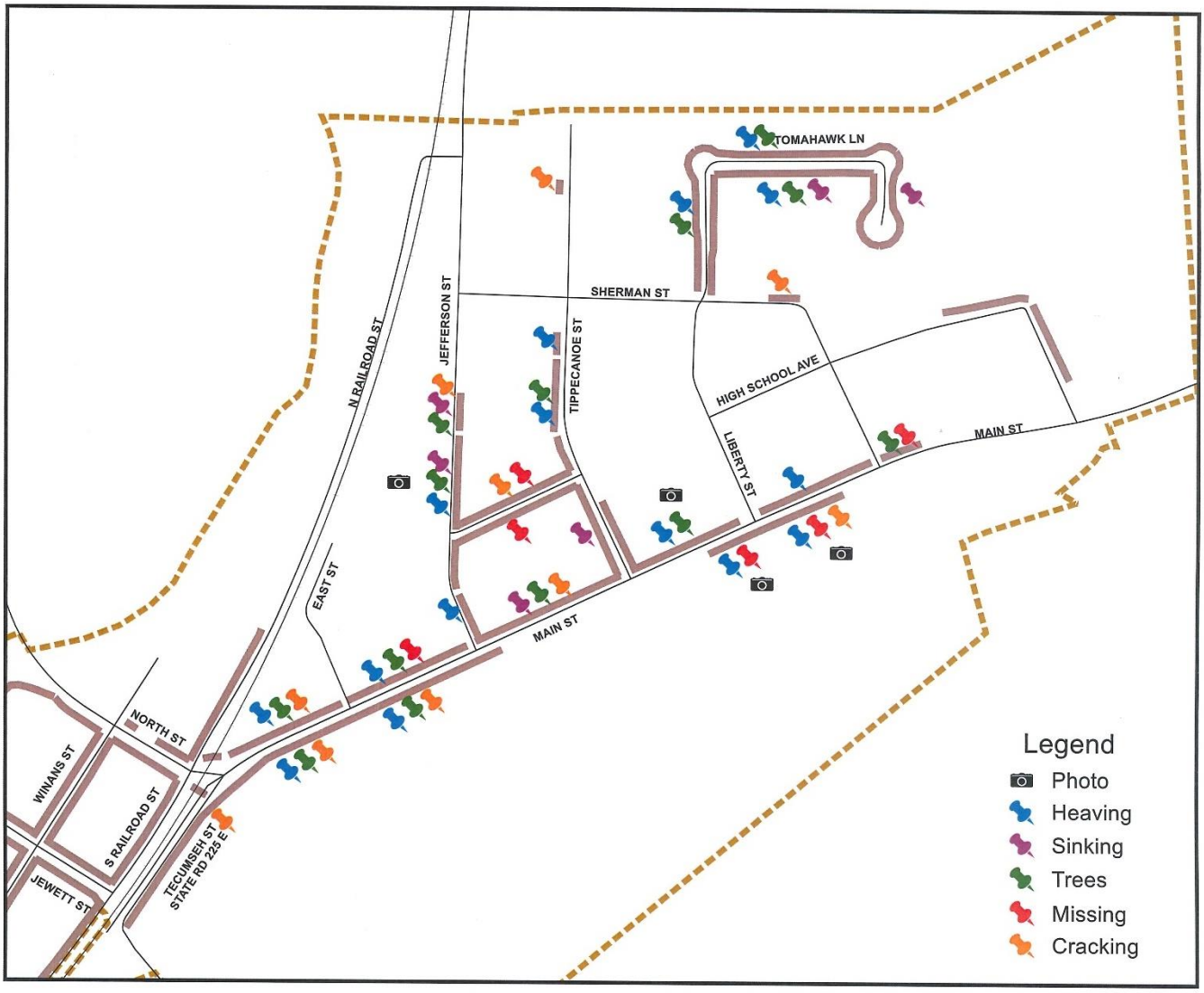
**Figure 3, Sidewalk Conditions in the Harrisonville Area**




Even though many of the sidewalks in this portion of the town were observed to be in fair to good condition, there are locations where condition issues were observed. **Figure 4** shows those sections of sidewalks where APC staff observed heaving, sinking, missing, cracking and issues due to trees. Nearly every sidewalk in this area of town has at least one condition issue.

The most observed issue is heaving in which the sidewalk was pushed upward. Fifteen of the 33 sections have some sort of heaving. The culprit that is mostly to blame are trees. **Photo A** shows an example.

**Figure 4, Location of Observed Issues in the Harrisonville Area**




Another example of heaving is shown in **Photo B.** The two sections that failed along Main Street included spots that heaved. **Photo B** shows the significant height difference between the two slabs.

**Photo A, Jefferson Street North of High School Avenue**

**Photo B, Main Street East of Liberty Street**

Heaving was not the only reason why the two sections of sidewalk on Main Street received a failed rating. Sections missing, and cracking are the other culprits. **Photo C** shows a good example of a missing section.

**Photo C, Main Street East of Liberty Street**

APC staff observed several other issues in this area of town. There are twelve sections where cracking is observed. There are six sections where one or more slabs sank. **Photo D** shows one location on Main Street west of Liberty Street where a slab sank.

**Photo D, Main Street West of Liberty Street**

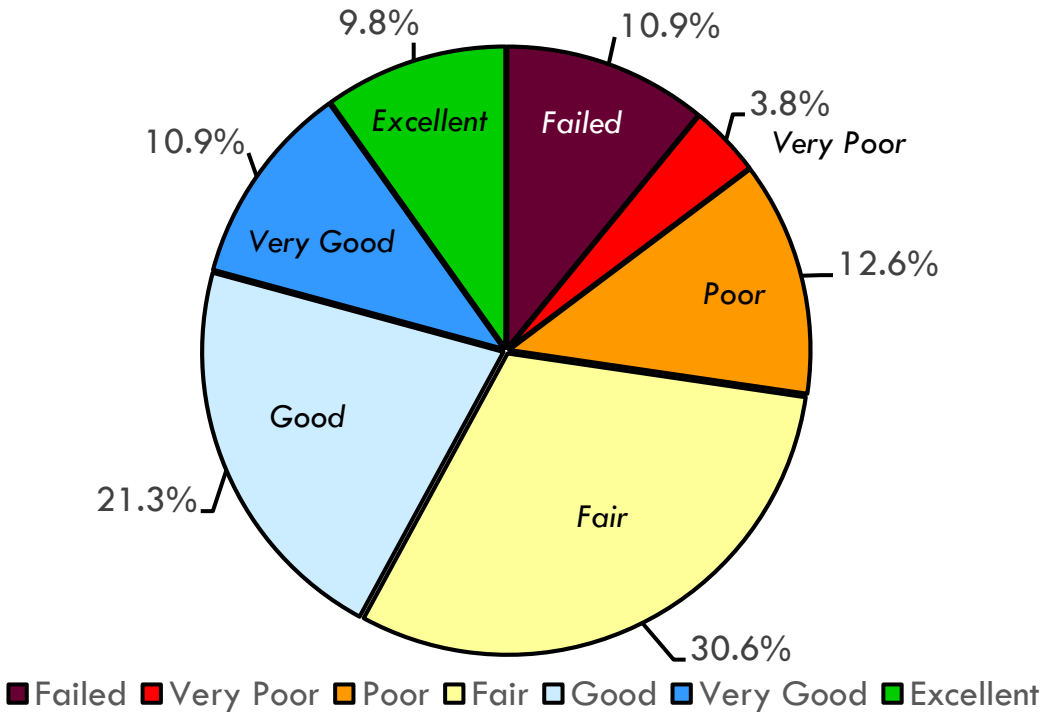
## *Old Battle Ground*

In this area of town, there are 1.83 miles of sidewalk and they range from being in excellent condition to failing. **Table 3** shows the mileage and percentage of sidewalk by condition and **Figure 5** visually shows the condition by percentage. Nearly all the sidewalks in this portion of town are also constructed of concrete. There are three sections: one on North Street and the two crossing the CSX Railroad tracks, that are comprised of asphalt.

**Table 3, Sidewalk Condition by Miles & Percentage in the Old Battle Ground Area**

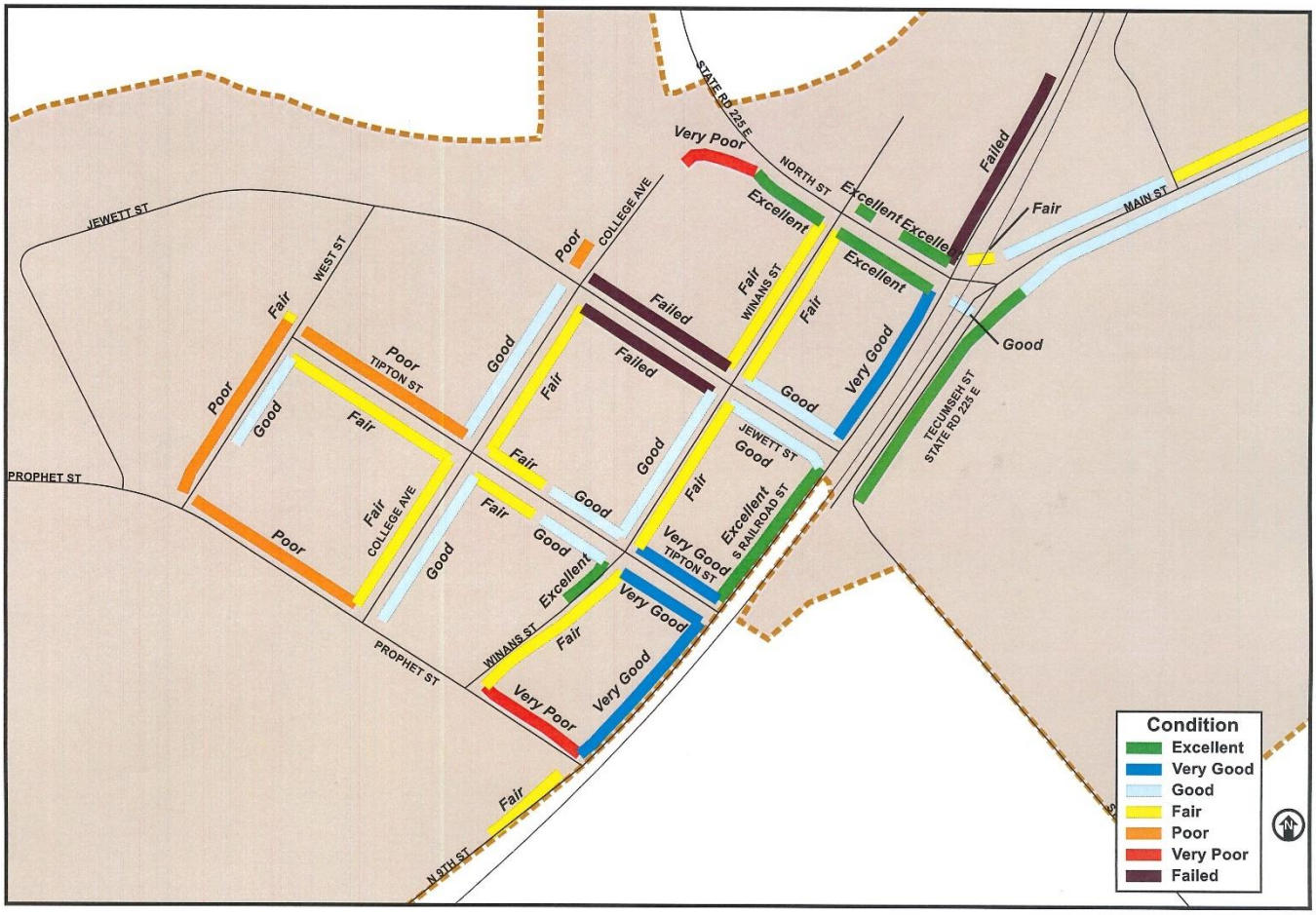
| Condition | Miles | *Percentage* |
|---|---|---|
| Excellent | 0.18 | *9.9%* |
| Very Good | 0.20 | *10.9%* |
| Good | 0.39 | *21.3%* |
| Fair | 0.56 | *30.6%* |
| Poor | 0.23 | *12.6%* |
| Very Poor | 0.07 | *3.8%* |
| Failed | 0.20 | *10.9%* |
| Total | 1.83 | *100%* |

**Figure 5, Sidewalk Condition in the Old Battleground Area by Percentage**



A fifth, 20.8%, of the sidewalks in this portion of town were found to be in very good to excellent condition. They are located along the majority of North and Railroad Streets and several segments of Tipton and Winans Streets. The reason for the ratings along Railroad and North Streets is due to two federal aid transportation projects. Money from the Federal gas tax paid for 80% of the cost to build the sidewalks. **Figure 6** shows the condition of sidewalks in this area of town.

**Figure 6, Sidewalk Conditions in the Old Battle Ground Area**




Looking at the other end of the condition scale, there are three sections observed that failed, 0.2 miles, and two in very poor condition, 0.07 miles. The percentage of sidewalk in these two conditions is less than those with an excellent and very good rating. Railroad Street north of North Street and the sidewalks along both sides of Jewett Street between College Avenue and Winans Street are the three segments observed to have failed. The section of Prophet Street west of Railroad Street and the asphalt path from the end of College Street to North Street are both rated in very poor condition.

**Figure 6** shows that three of the four sections rated poor are located in the western side of this area of town. They are along Prophet Street, West Street and Tipton Street. The other section rated poor is on College Avenue near the Town Hall.

APC staff observed that just over fifty percent of the sidewalks in this portion of town are rated in good and fair conditions. Over thirty percent (30.6%) of the sidewalks are in fair condition and over twenty percent (21.3%) are in good condition. This is opposite of the Harrisonville area where more sidewalks are rated in good (41.1%) than fair (19.0%) condition.

**Figure 7** shows where the heaving, sinking, missing, cracking and issues related to trees are located. Heaving is a significant problem. APC staff observed fourteen sections with varying degrees of heaving ranging from a minimal to a substantial amount. **Photos E, F, G, H** show various heaved sidewalks.

**Figure 7, Location of Observed Issues in the Old Battle Ground Area**

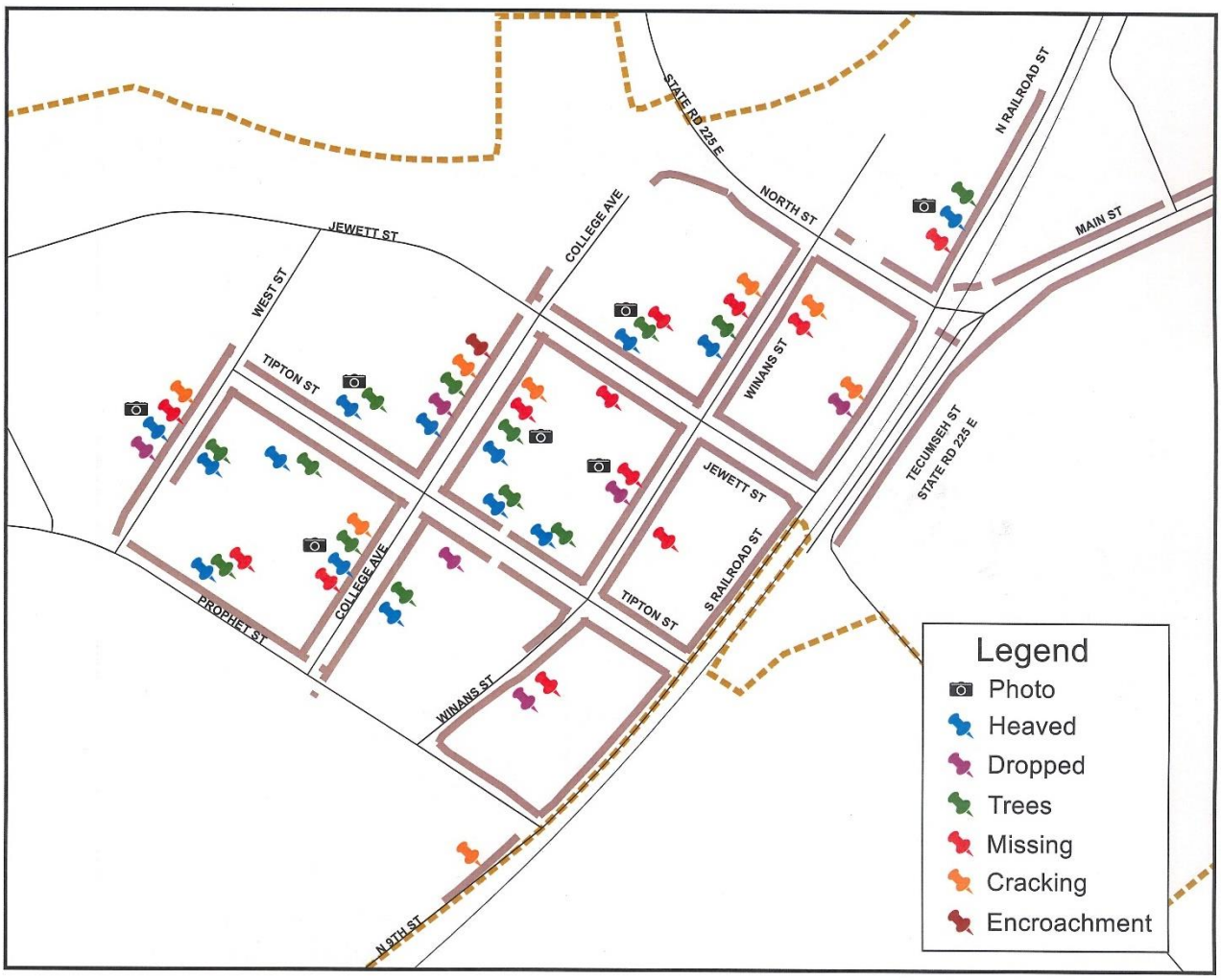


**Photo E, Jewett Street Between Winans Street and College Avenue**

**Photo F, Tipton Street Between College Avenue and West Street**


**Photo G, College Avenue Between Jewett Street and Tipton Street**

**Photo H, College Avenue Between Tipton Street and Prophet Street**

Many of the heaving issues in this area of town are caused by trees. **Photos F, G,** and **H** show this.

There are a substantial number of sidewalks in this portion of town in which sections are missing. They range from small pieces to complete sections. All three failed sidewalks have missing sections, especially on Jewett Street between Winans Street and College Avenue. **Photo I** shows one of the locations on College Avenue. **Photo J** shows a substantially missing section on Railroad Street just north of North Street. It appears that the missing sidewalk could be a driveway or part of a parking lot.

**Photo I, College Avenue Between Winans Street and College Street**

**Photo J, Railroad Street North of North Street**

Sections of sidewalk that sank are also present and located at various locations. **Photo K** is an example of a slab that sank.

**Photo K, Winans Street Between Jewett Street and Tipton Street**

APC staff observed various sections that have a combination of issues including heaving, sinking, missing and/or cracking. **Photo L** shows one section that has a combination of these issues. This section also had some segments replaced.

**Photo L, West Street Between Tipton Street and Prophet Street**

## *Harrison Meadows*

This residential subdivision is located on the north side on CR 600N and just west of Shawnee Ridge. There are 38 homes in the subdivision and all of them were constructed in the late 1970's. Thus, the sidewalks are approximately 40 years old and nearly all of them are made of concrete.

There are just under three quarters of a mile of sidewalks within the subdivision and nearly all, 94.5%, are in good condition. The one section that is not rated good is rated in fair condition. This is due to one section that is comprised of brick rather than concrete. Grass is substantially growing between each brick and the surface is very irregular and not level. **Table 4** shows the conditions by miles and percentage and **Figure 8** shows the conditions by segment.

Similar to the previous observations, the major issue here is heaving. Five of the eight sections have some varying degree of heaving. And similar to the previous areas, the culprit that caused this condition is trees. **Photos M** and **N** show heaving at two locations. **Figure 9** shows the observed issues by condition.

**Table 4, Sidewalk Condition by Miles & Percentage in the Harrison Meadows Subdivision**

| Condition | Miles | *Percentage* |
|---|---|---|
| Excellent | 0 | --- |
| Very Good | 0 | --- |
| Good | 0.69 | *94.5%* |
| Fair | 0.04 | *5.5%* |
| Poor | 0 | --- |
| Very Poor | 0 | --- |
| Failed | 0 | --- |
| Total | 0.73 | *100%* |

Other issues were observed. Cracking and grass growing between the sidewalk joints were observed at various locations within the subdivision. Cracking is not as substantial as in the previous two areas.

There is one location where it was impossible for a pedestrian to use the sidewalk and it is located on Warrior Drive just east of Battleview Drive. **Photo O** shows a clump of large arborvitaes growing over the sidewalk.

**Figure 8, Sidewalk Conditions in the Harrison Meadows Subdivision**

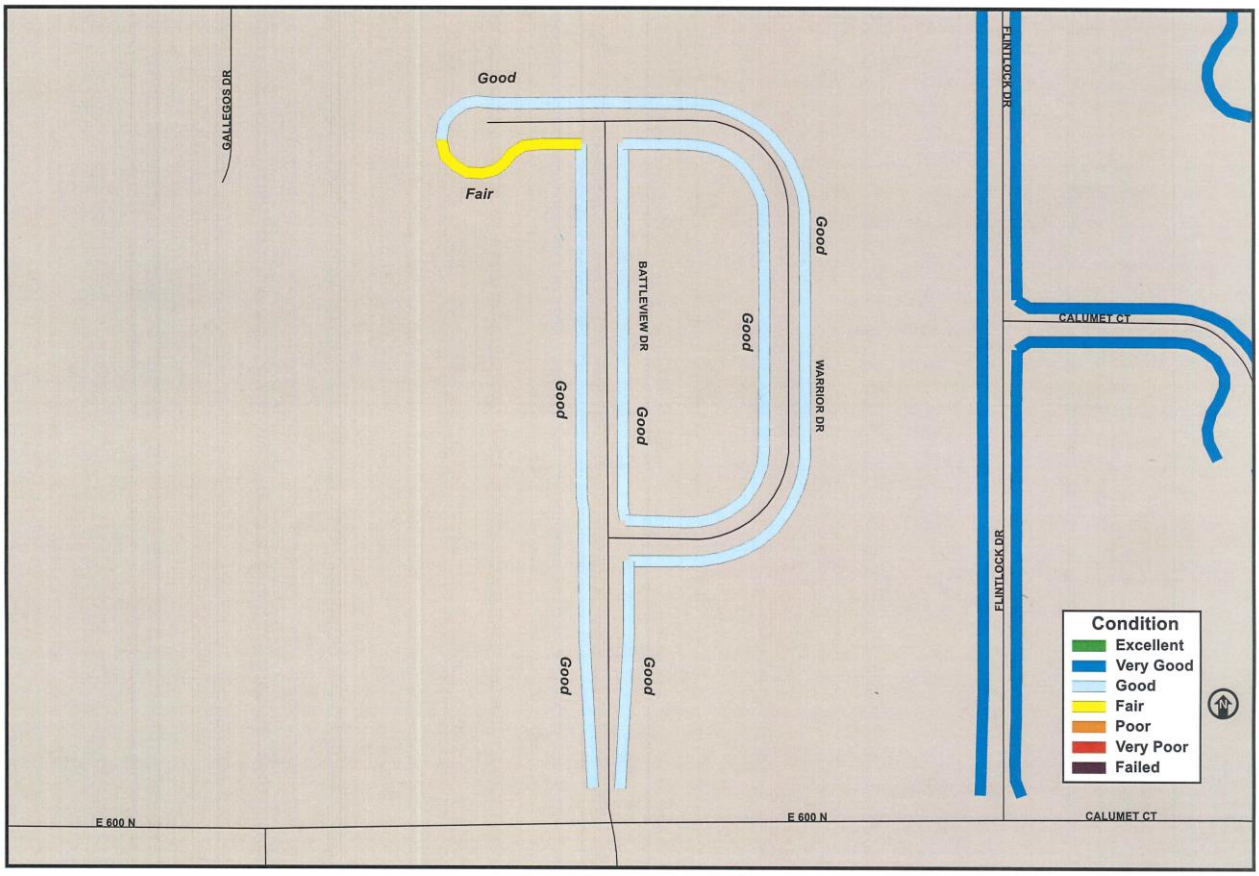



**Photo M, Battleview Drive Between Warrior Drive and CR 600N**

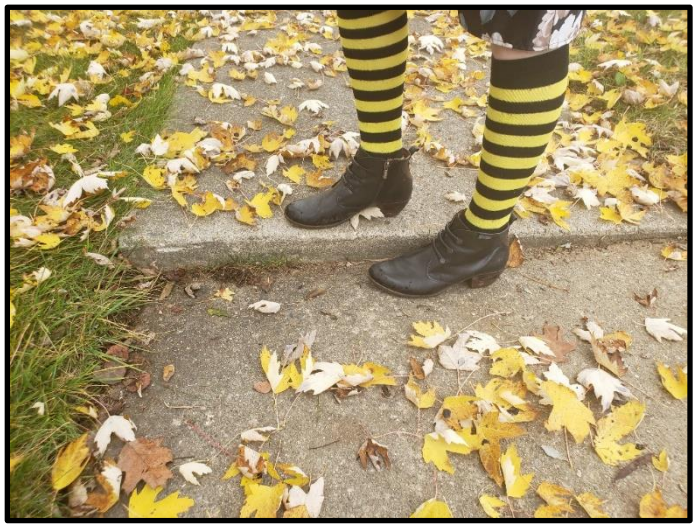


**Photo N, Battleview Drive Between the North and South Intersections with Warrior Drive**

**Figure 9, Location of Observed Issues in the Harrison Meadows Subdivision**

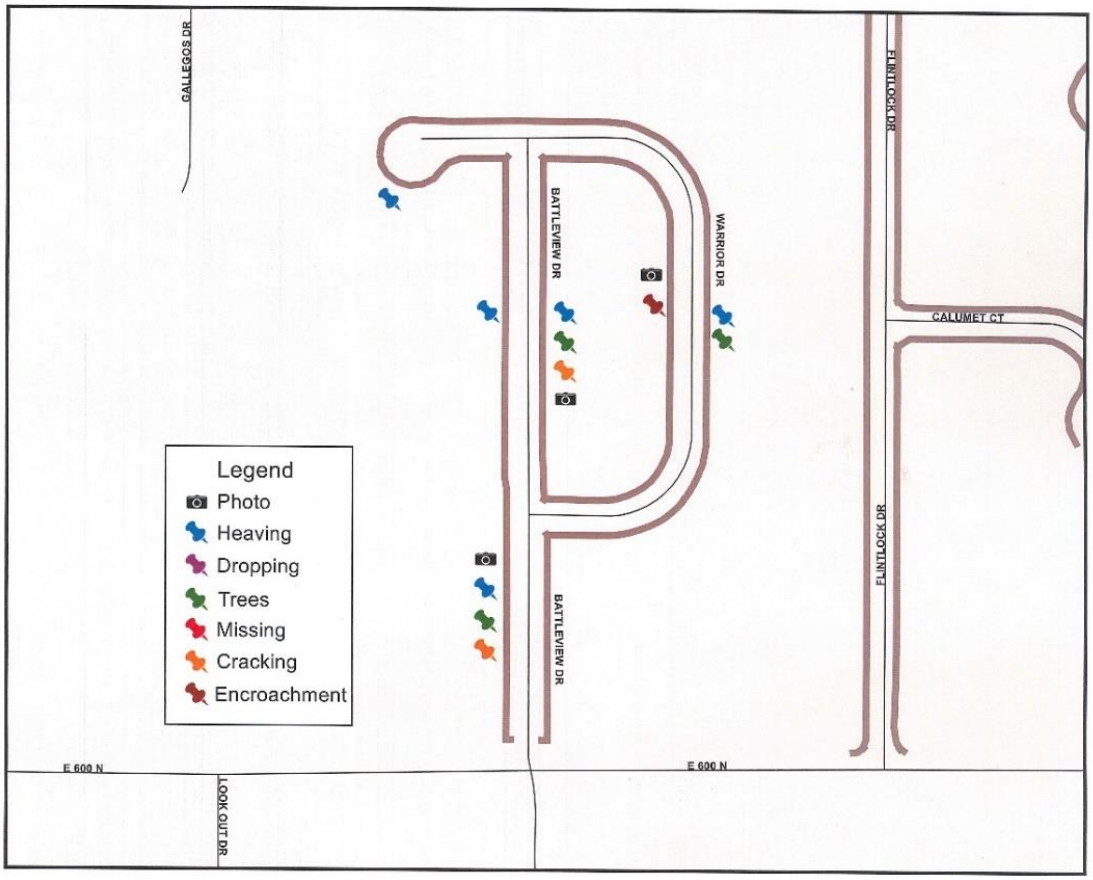



**Photo O, Warrior Drive East of Battleview Drive**

## *Shawnee Ridge*

This residential subdivision is located on the north side of CR 600N and it is the newest residential subdivision within the town. While construction of the first homes began in early 2000's, it has taken a considerable amount of time for the vacant lots to be developed. Several homes were built last year and there are still a few remaining lots undeveloped. This subdivision has not been a part of the town for very long. The subdivision was annexed on October 14, 2014.

Over 40%, or 3.51 miles, of the town's sidewalks are located in this subdivision and since this subdivision is relatively new, all of them are rated as either very good or in excellent condition. The southern and western parts of the subdivision, the oldest sections, are rated very good, 2.36 miles, while the northern section are rated as excellent, 1.15 miles. **Table 5** shows this breakdown and **Figure 10** shows the condition of sidewalks in this portion of the town.

**Table 5, Sidewalk Condition by Miles & Percentage in the Shawnee Ridge Subdivision**

| Condition | Miles | *Percentage* |
|---|---|---|
| Excellent | 1.15 | *32.8%* |
| Very Good | 2.36 | *67.2%* |
| Good | 0 | --- |
| Fair | 0 | --- |
| Poor | 0 | --- |
| Very Poor | 0 | --- |
| Failed | 0 | --- |
| Total | 3.51 | *100%* |

While sidewalks in Shawnee Ridge range from nearly 20 years old to brand new, APC staff observed various issues throughout the subdivision. The issues include sinking, cracking, missing, heaving, cracking and encroachment. **Figure 11** shows the locations of the observed issues.

The most common issue is sinking, and it was found throughout the subdivision. It is even present in the northern sections where the sidewalks are in excellent condition. There is one culprit that mainly caused this issue and it is utilities. They are either installed within the path of the sidewalk or on either side. **Photos P, Q, R, S,** and **T** show examples of the issue.

**Photo T** shows a dangerous spot in which the manhole is significantly lower than the sidewalk. The sidewalk is even painted, although very faded, to warn pedestrians of the danger.

**Figure 10, Sidewalk Conditions in the Shawnee Ridge Subdivision**

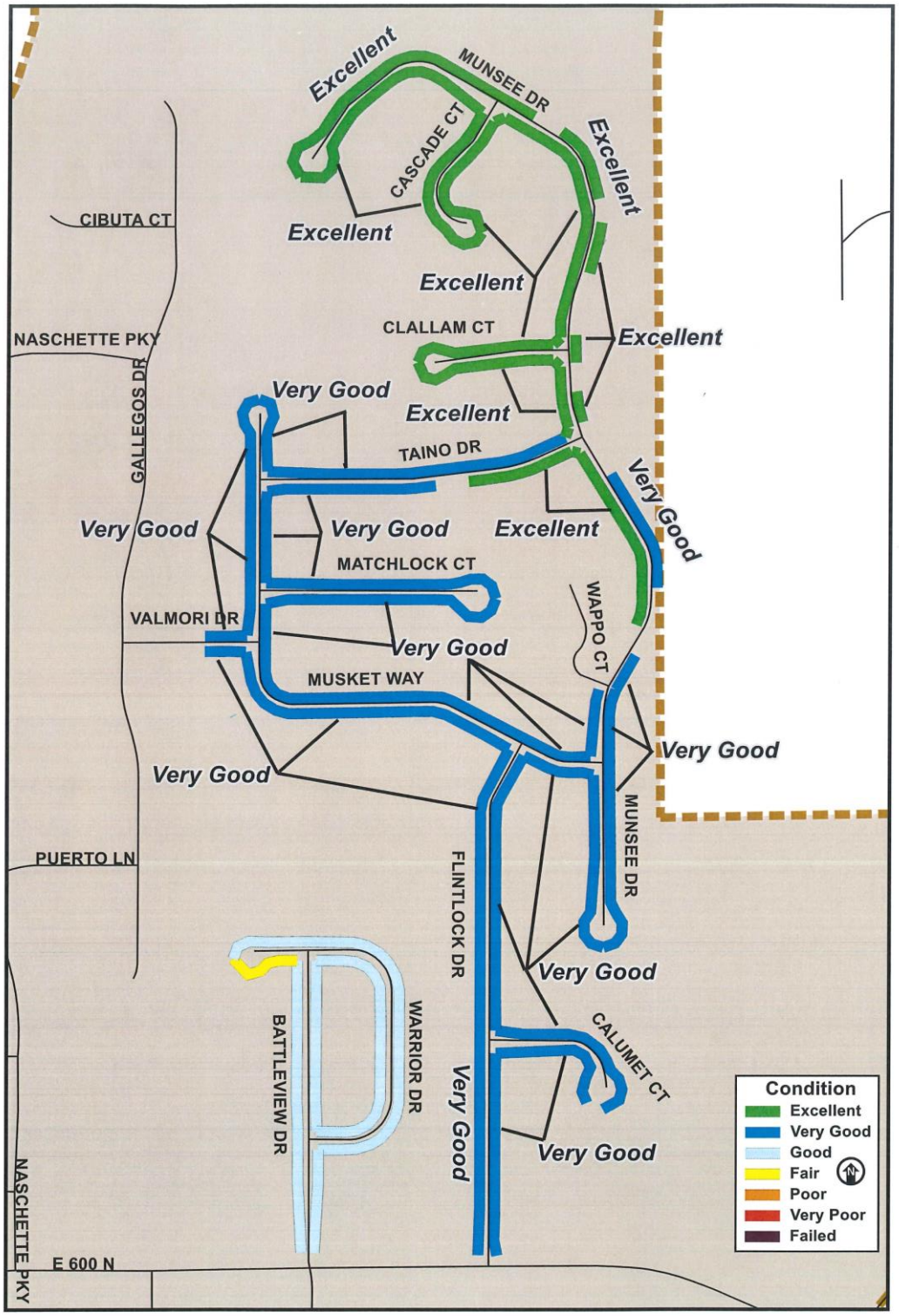


**Figure 11, Location of Observed Issues in the Shawnee Ridge Subdivision**

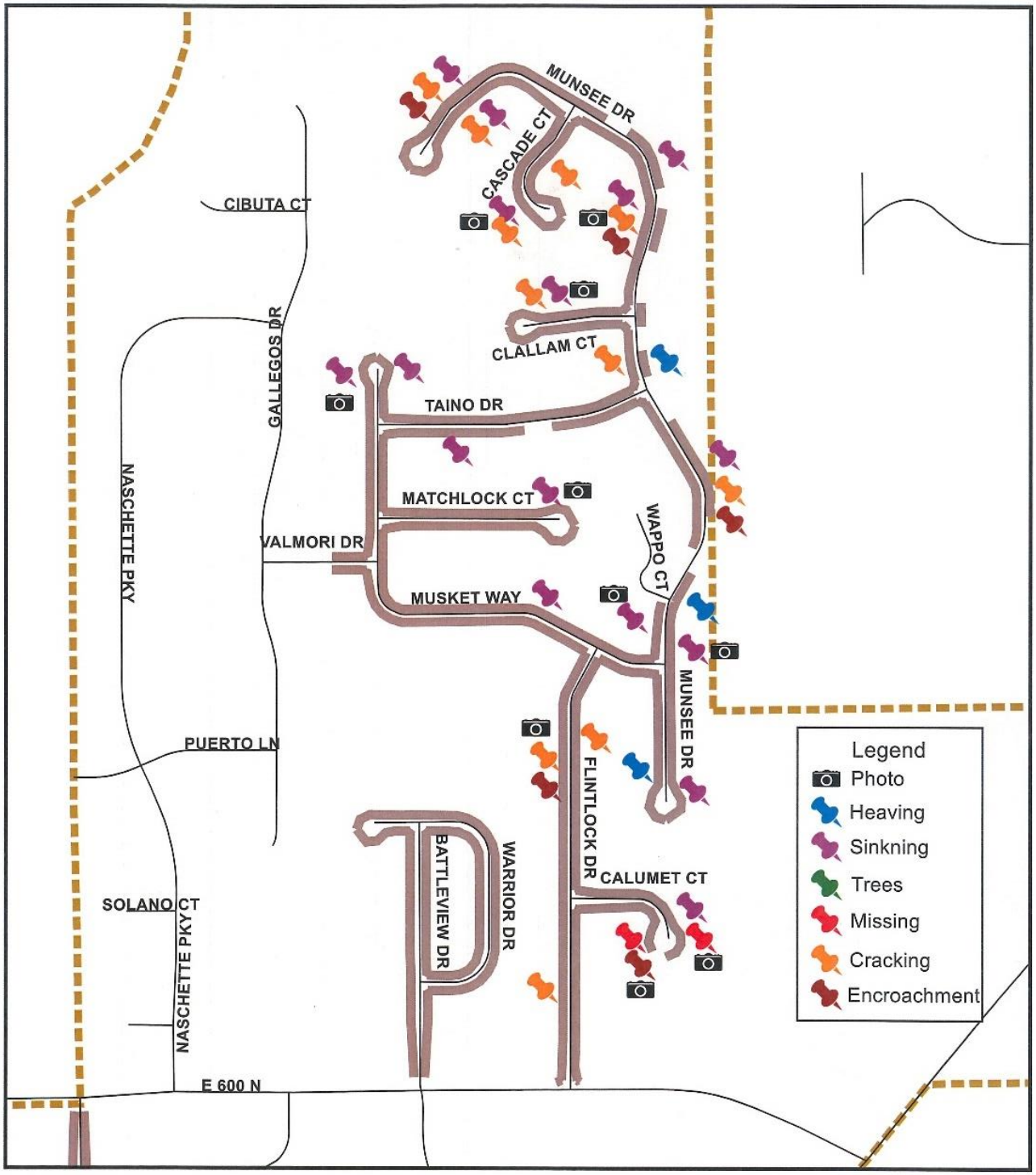


**Photo P, Musket Way North of Taino Drive**

**Photo Q, Matchlock Court**

**Photo R, Munsee Drive Between Musket Way and Wappo Court**

**Photo S, Cascade Court**

**Photo T, Munsee Drive South of Wappo Court**

APC staff also observed other issues caused by utilities. **Photos Q** and **U** show two locations where they are protruding above the sidewalk surface.

No issues were observed from trees heaving the sidewalks, but there are several sections where bushes, shrubs and trees partially blocked the path. **Photos V, W** and **X** show several of those locations.

While some cracking is evident throughout the subdivision, they are mostly hair line cracks and not as significant as the cracking found in the older parts of town.

**Photo U, Matchlock Court**

**Photo V, Flintlock Drive Between Musket Way and Calumet Court**

**Photo W, Calumet Court**

**Photo X, Munsee Drive Between Clallam Court and to Cascade Court**

Another issue observed is missing sections of sidewalks located on Calumet Court, Taino Drive, Munsee Drive and Wappo Court. There are several reasons why they are missing and they are: a) Wappo Court is not a public street and because of this sidewalks are not required; b) there are a few lots still owned by the developer that have not yet been sold; c) an adjacent property owner or individual purchased vacant lots and have made no improvements; d) a home builder only partially built the required sidewalk; and e) a home builder simply did not build the required sidewalk.

Regarding missing sections, there is one spot where it appears utilities were installed, and the section of sidewalk was removed during installation. Unfortunately, the sidewalk was not reinstalled after the work was completed. **Photo Y** shows the spot.

**Photo Y, Calumet Court**

## *Quail Ridge*

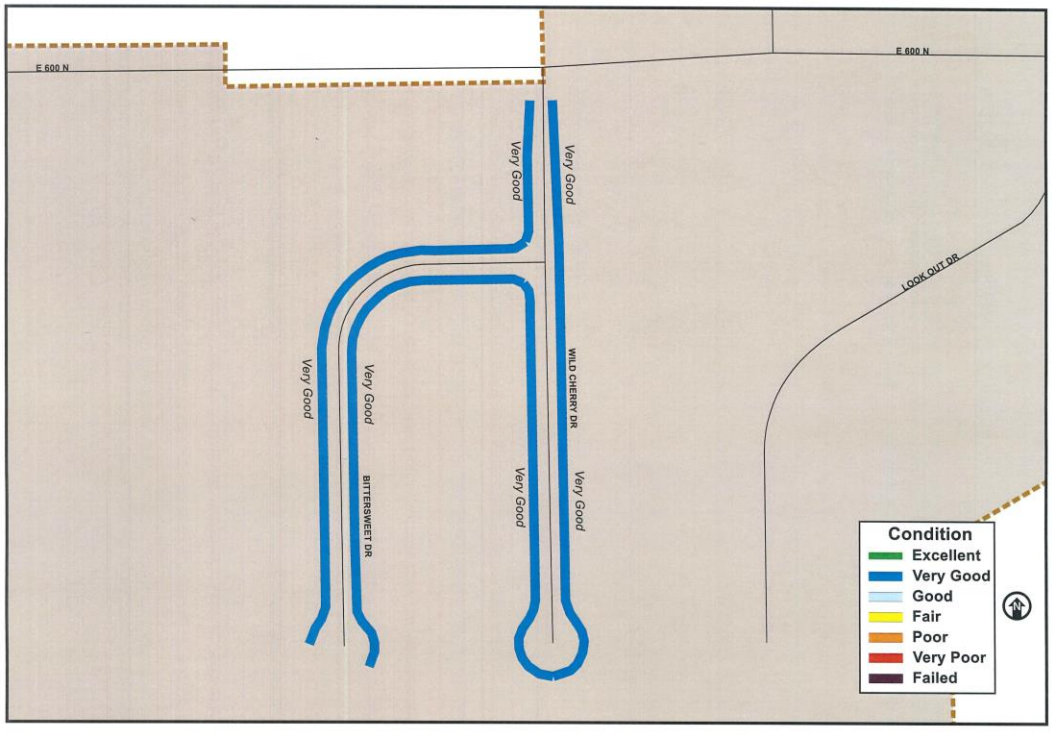
Quail Ridge is a residential subdivision located on the south side on CR 600N and east of the State Police Post. There are 35 homes in the subdivision and all of them were constructed in the early 1990's. The sidewalks in this subdivision are roughly 30 years old.

There is six-tenth of a mile of sidewalks within the subdivision, are all rated in very good condition. **Table 6** shows the condition by miles and percentage and **Figure 12** shows the condition by segment.

**Table 6, Sidewalk Condition by Miles & Percentage in the Quail Ridge Subdivision**

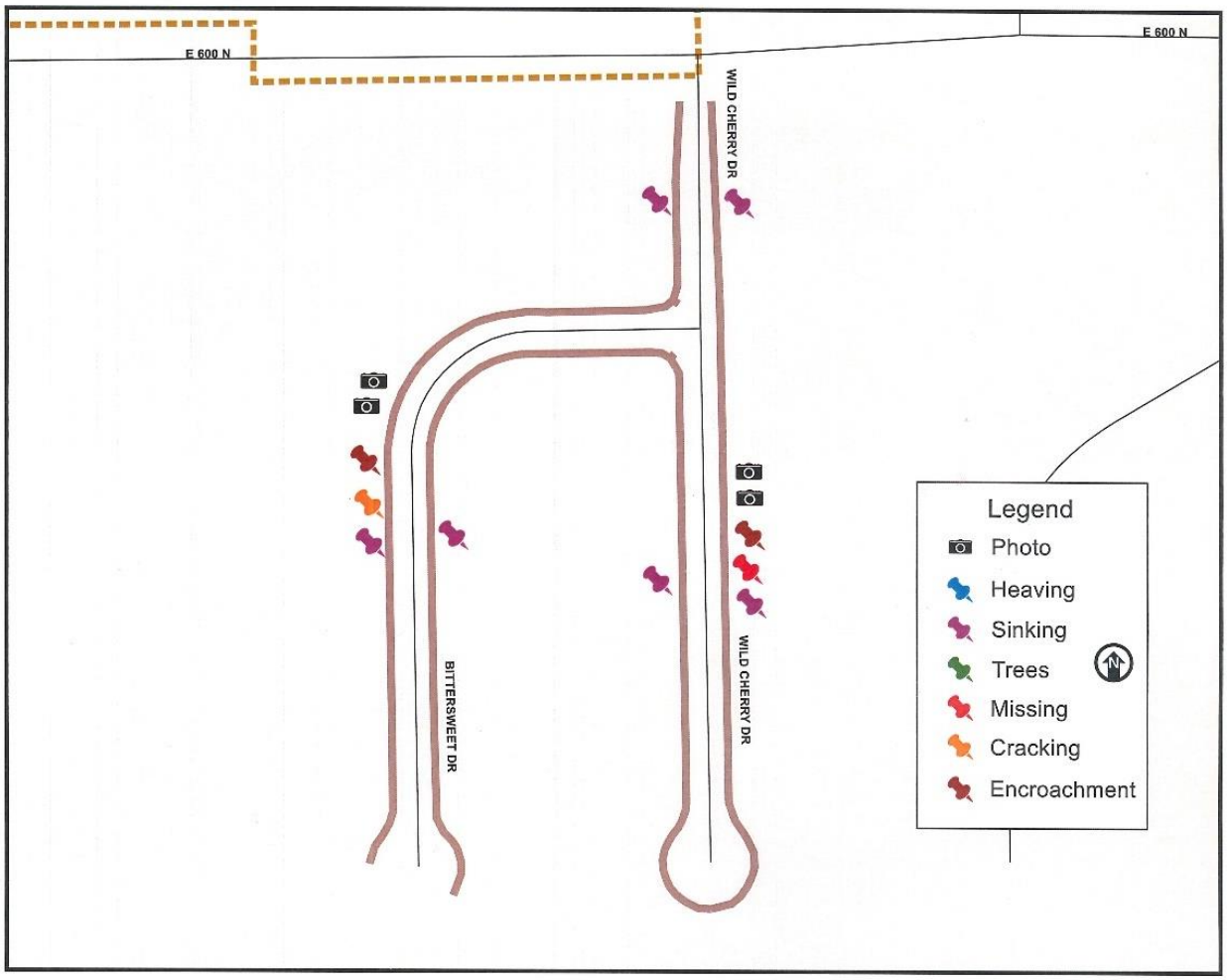
| Condition | Miles | *Percentage* |
|---|---|---|
| Excellent | 0 | --- |
| Very Good | 0.60 | *100%* |
| Good | 0 | --- |
| Fair | 0 | --- |
| Poor | 0 | --- |
| Very Poor | 0 | --- |
| Failed | 0 | --- |
| Total | 0.60 | *100%* |

**Figure 12, Sidewalk Conditions in the Quail Ridge Subdivision**



Overall there were no major outstanding issues observed within the subdivision. All the issues are minor especially when compared to the other parts of the town. **Figure 13** shows where the minor issues were observed. The issue most observed is sinking and nearly all the sinking was observed either between driveways and sidewalks or where utilities are located.

**Figure 13, Location of Observed Issues in the Quail Ridge Subdivision**




At two locations a pine tree and bush are growing over the sidewalk. The pine tree is located on Bittersweet Drive just west of Wild Cherry Drive and the bush is located on Wild Cherry Dive. **Photo Z** shows the pine tree.

**Photo Z, Bittersweet Drive West of Wild Cherry Drive**

There were a few issues observed related to utilities. **Photo AA** shows a water utility pipe protruding above the sidewalk on Wild Cherry Drive. **Photo AB** shows a fire hydrant on the edge of the sidewalk. Interestingly, the builder who installed the sidewalk added a bump on the opposite side of the hydrant so the sidewalk would still be the full standard width.

**Photo AA, Wild Cherry Drive South of Bittersweet Drive**

**Photo AB, Bittersweet Drive West of Wild Cherry Drive**

The cracking observed was minimal and only occurred on two of the individual sections. One was located near a utility.

On Wild Cherry Drive, APC staff observed one spot where there appeared to be a six-inch hole in the sidewalk and is marked on **Figure 13** with the missing symbol.

There is one place within the subdivision where there is no sidewalk and it is located on Bittersweet Drive in the cul-de-sac. Looking more closely at the location, the missing section is actually comprised of three vacant lots and the owner of the vacant lots also owns an adjacent home.

## Next Steps

Now that the conditions have been observed, noted and reported, the next step is to develop an action plan to address the problematic sections and spot locations. That plan would list and prioritize those sections of sidewalks starting with the failed and very poor locations followed by sections that received a poor rating. The action plan would also include a list of spot locations that should be addressed starting with the most hazardous. Developing a priority list would help the council decide how to spend limited funding available for improvements.

The GIS information shows where all the sidewalks are located. From that, one can see where there are gaps between existing sidewalks and along streets where they do not exist. A plan could be developed to list and then prioritize the construction of those missing sidewalks.

Finally, developing a trail plan throughout the town with future connections to existing and planned future trails both inside and outside the town would greatly enhance the livability of the town. It would provide a means for citizens to walk, exercise and ride a bicycle throughout the town and to more distant locations. The plan could be developed independently or when the Area Plan Commission updates its Metropolitan Transportation Plan. Any planned trails that are identified in the Metropolitan Transportation Plan would allow the town to use federal transportation gas tax dollars to construct these new trails. The federal transportation gas tax normally pays for 80% of the cost of designing the improvement, purchasing any property needed and construction.

## Appendix

*Concrete Sidewalk Rating System*
*HWC Engineering*

# Concrete Sidewalk Rating System

## METHODOLOGY

In rating pavement, the Pavement Surface Evaluation and Rating (PASER) rating system is a well-established national standard for asphalt surfaces. That standard is included in the *Asphalt Roads PASER Manual* published by the University of Wisconsin-Madison Transportation Information Center.

While there is also a *Concrete Roads PASER Manual* for concrete pavement, that system is intended for use on concrete roadway pavements. It rates concrete pavement based on the condition of joints and repairs, and is not applicable to concrete sidewalks.

At this point, there is not a similar accepted national standard for rating concrete sidewalks. In absence of a system, a modified PASER rating system was adapted by HWC Engineering for use on sidewalk asset management plans. This modified PASER uses the same 1 to 10 rating scale as the University of Wisconsin-Madison system, but with descriptions of conditions and defects relevant to concrete pedestrian walks.

It is important to note that this system is limited to sidewalk condition and does not consider Americans with Disabilities Act (ADA) compliance or related factors. An evaluation of ADA compliance, including compliance of curb ramps, is recommended to accompany the assessment of sidewalk conditions.

## CONCRETE MODIFIED PASER RATINGS

For concrete sidewalks and trails, the PASER system is much the same as it is for rating asphalt pavement. A rating of 1 is very poor and requires reconstruction and a rating of 10 is excellent and represents a sidewalk that has just been installed. The rating system was designed to follow the typical age-related condition changes that occur through the life cycle of the concrete sidewalks. However, major defects sometimes occur which can accelerate the rate of deterioration and cause a rapid drop in PASER rating levels. Once a major defect occurs, the surrounding sidewalk can deteriorate rapidly; therefore, identifying and correcting these problem areas in a timely fashion is of critical importance.

Rating segments are generally broken out by block with a separate rating provided for each side of the street. In addition, it is recommended that significant spot defects be logged to aid in prioritizing short term repairs.

The modified concrete PASER system is described in Figure 1 and illustrated on the following pages.

Example of a surface defect problem spot

## Figure 1. Concrete Modified PASER Field Guide

| Surface Rating | CONCRETE MODIFIED PASER RATING SYSTEM | |
|---|---|---|
| | **Condition and Visible Distress** | **General Treatment Measures** |
| **10**<br>**Excellent** | **New Construction**<br>Visible Distress: None. | No maintenance required. |
| **9**<br>**Excellent** | **Recent Construction, Like New**<br>Visible Distress: Minor weathering of surface. | No maintenance required. |
| **8**<br>**Very Good** | **Like New**<br>Visible Distress: Little or no depressed or raised areas (0 to ½").<br>No more than 10% of sidewalk panels with cracks or moderate spalling of concrete surface.<br>No debris/vegetation within sidewalk.<br>Still functional. | Little or no maintenance required. |
| **7**<br>**Good** | **First Signs of Aging**<br>Visible Distress: Similar to Rating 6, but slightly better. | Maintain with Replacement of Individual Panels with Significant Defects or Grinding Offset Surfaces, Seal open joints or other maintenance. |
| **6**<br>**Good** | **Shows Signs of Aging**<br>Visible Distress: Limited raised/depressed areas(0" to 1")<br>No more than 25% of sidewalk panels cracked or with moderate spalling of concrete surface.<br>Less than 10% covered by debris/vegetation.<br>Functionality might be a hindrance to some pedestrians. | Maintain with Replacement of Individual Panels with Significant Defects or Grinding Offset Surfaces |
| **5**<br>**Fair** | **Surface Aging**<br>Visible Distress: Similar to Rating 4, but slightly better. | Requires Replacement of Multiple Panels or Extensive Grinding of Offset Surfaces. |
| **4**<br>**Fair** | **Significant Aging**<br>Visible Distress: Frequent raised/depressed areas(1" to 2")<br>25-50% of sidewalk panels cracked or with moderate to severe spalling of concrete surface.<br>Up to 25% covered by debris/vegetation.<br>Not easily navigated by runners, stroller users and wheelchair users. | Requires Replacement of Multiple Panels or Extensive Grinding of Offset Surfaces. |
| **3**<br>**Poor** | **Moderate Deterioration**<br>Visible Distress: Similar to Rating 2, but slightly better. | Requires Replacement of Extensive Sections of Sidewalk. |
| **2**<br>**Very Poor** | **Severe Deterioration**<br>Frequent raised/depressed areas (over 2")<br>Up to 50% severely cracked squares of concrete or with severe spalling of concrete surface.<br>25-50% covered by debris/vegetation.<br>Not functional for most users. | Not Functional. Large areas need full replacement. |
| **1**<br>**Failed** | **Failed**<br>Frequent raised/depressed areas (over 2")<br>Over 50% severely cracked squares of concrete or with severe spalling of concrete surface.<br>Over 50% covered by debris/vegetation.<br>Sidewalk is impassible. | Needs total Replacement. |

*Source: HWC Engineering*

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## CONCRETE RATING 10

EXCELLENT – New pavement. No maintenance required.

*Source: HWC Engineering*

## CONCRETE RATING 9

EXCELLENT – Like-new sidewalk. Some traffic and surface wear. No maintenance required.

*Source: HWC Engineering*

## CONCRETE RATING 8

VERY GOOD – More surface wear or slight defects, such as minor pop-outs, slight surface scaling, partial loss of joint sealant, or isolated meander crack. Little or no maintenance required.

*Source: HWC Engineering*

## CONCRETE RATING 7

GOOD – First signs of transverse cracking, patching, or repair. More extensive pop-outs or scaling. Some heaving or settlement. Sidewalk may appear unsightly, but is still functional. May require some routine maintenance.

*Source: HWC Engineering*

## CONCRETE RATING 6

GOOD – First signs of cracking
More frequent transverse cracks. Open joints and cracks (1/4”).
Moderate scaling. Functionality might be a hindrance to some pedestrians. Joint and crack sealing and other routine maintenance may be needed.

*Source: HWC Engineering*

## CONCRETE RATING 5

FAIR – First signs of joint or crack spalling or faulting. Multiple cracks at corners and/or broken pieces. Functionality might be a hindrance to pedestrians. Surface texturing repairs, partial depth patching, joint repairs, or panel replacement may be needed. Vegitation starting to grow through cracks.

Source: HWC Engineering

## CONCRETE RATING 4

FAIR – Significant signs of joint or crack spalling or faulting. Multiple cracks at corners and broken pieces. Not easily navigated by pedestrians. Extensive surface texturing repairs, crack repairs, or panel replacement may be needed.

Source: Mapio.net

## CONCRETE RATING 3

POOR – Severe joint or crack spalling or faulting. Most joints and cracks are open. Significant hindrance to pedestrians. Multiple panel replacement may be needed.

*Source: VAHI Civic Association*

## CONCRETE RATING 2

VERY POOR – Severe deterioration and extensive joint failure. Not functional for most users. Pavement reconstruction necessary.

*Source: Buchheit Construction*

## CONCRETE RATING 1

FAILED – Severe joint or crack spalling or faulting, significant heave or settlement and slab failure. Impassible to pedestrians. Complete reconstruction necessary.