

DISTRICT 10 ACCESSIBILITY AND CONNECTIVITY STUDY  
VARIOUS COUNTIES  
KYTC ITEM NO. N/A

## **APPENDIX D – OPERATIONS MANAGEMENT SYSTEM (OMS) REVIEW**

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To: Jason Blackburn, P.E.  
KYTC District 10

From: Brian Aldridge, PE  
Stantec Consulting Services  
Inc.

Mikael Pelfrey, P.E.  
KYTC Central Office Planning

File: KYTC District 10 Accessibility  
and Connectivity Study

Date: May 8, 2018

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**Reference: Appendix D – District 10 OMS County Meeting Summaries**

### **OMS County Meetings**

As a part of the existing data review process, Operations Management System (OMS) data was provided by KYTC for the ten counties within District 10 with the objective of identifying large, persistent maintenance issues on major corridors. The original spreadsheet from KYTC had 22,211 individual maintenance activities (rows of data) for District 10 between January 2012 and July 2017. These 22,211 activities were combined by route and milepoints using Microsoft Access into 4,548 rows of data.

To help identify trouble spots, per mile costs were calculated, with segments shorter than a mile treated as if they were one mile. For example, a 0.8-mile segment with a total maintenance cost of \$75,000 had a cost/mile of \$75,000. There were found to be 135 roadway segments in the District with a maintenance cost greater than \$25,000 per mile. The maintenance records for each of these segments were compiled and examined. A graph showing the costs of each maintenance activity and a graph of the maintenance costs over time were created for the segments to help identify recurring patterns. Through this process, 40 locations were found to have recurring maintenance issues.

The next step was to organize individual meetings with maintenance staff from each of the District 10 counties to discuss the identified roadway segments and any other corridors with potential recurring maintenance issues. The goal of the meetings was to solicit input from the maintenance staff to compare to the results of the data-driven OMS approach. The meetings followed the following format:

1. The maintenance staff was given a blank map of their county and asked to point out corridors with recurring, high cost maintenance issues. These locations were discussed and circled on the map.
2. A second county map depicting the high cost per mile OMS corridors was then displayed. The maintenance staff pointed out which of these locations they believe do not have recurring maintenance issues.
3. The attendees then discussed the high cost per mile OMS corridors that were believed to have recurring maintenance issues. These locations were combined with the list created by the maintenance staff.

The ten county meetings are summarized below.

**Reference: Appendix D – District 10 OMS County Meeting Summary**

**Estill County:**

**Location:** Stanton Section Office in Stanton, KY

**Date:** April 3, 2018

**Attendees:**

Michael Barker	KYTC – District 10 Maintenance
Jason Blackburn	KYTC – District 10 Planning
Brandon Campbell	KYTC – District 10 Maintenance
Steve Farmer	Stantec Consulting Services Inc.
Mikael Pelfrey	KYTC – Central Office Planning
Graham Winchester	Stantec Consulting Services Inc.

**Introduction:**

**Figure 1** shows the results of Stantec's preliminary screening process for Estill County. There were 14 locations with per mile costs greater than \$25,000, however no locations were flagged during the data driven OMS approach as having recurring maintenance issues.

**Feedback:**

Based on a discussion with Estill County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **KY 851** in Ravenna near the Kentucky River (MP 9.0 – MP 11.0)
  - o The road is constantly falling into the river.
  - o This two-mile stretch is the problem for the entire route.
2. **KY 1209** near the Jackson County Line (MP 0.0 – 1.0)
  - o Yearly rock slides; road constantly flooding
3. **KY 1209** near the Jackson County Line (MP 4.0 – 5.0)
  - o Yearly rock slides
4. **KY 1139** near Noland (MP 0.5 – 2.0)
  - o Recurring rock slides; steel was put in 10 years ago
5. **KY 594** near the Jackson County Line (MP 2.0 – 4.0)
  - o Daily issues – rock slides, ponding, etc.
6. **KY 52** northeast of Ravenna (MP 13.0 – 17.0)
  - o Mountain route; drainage issues, falling trees

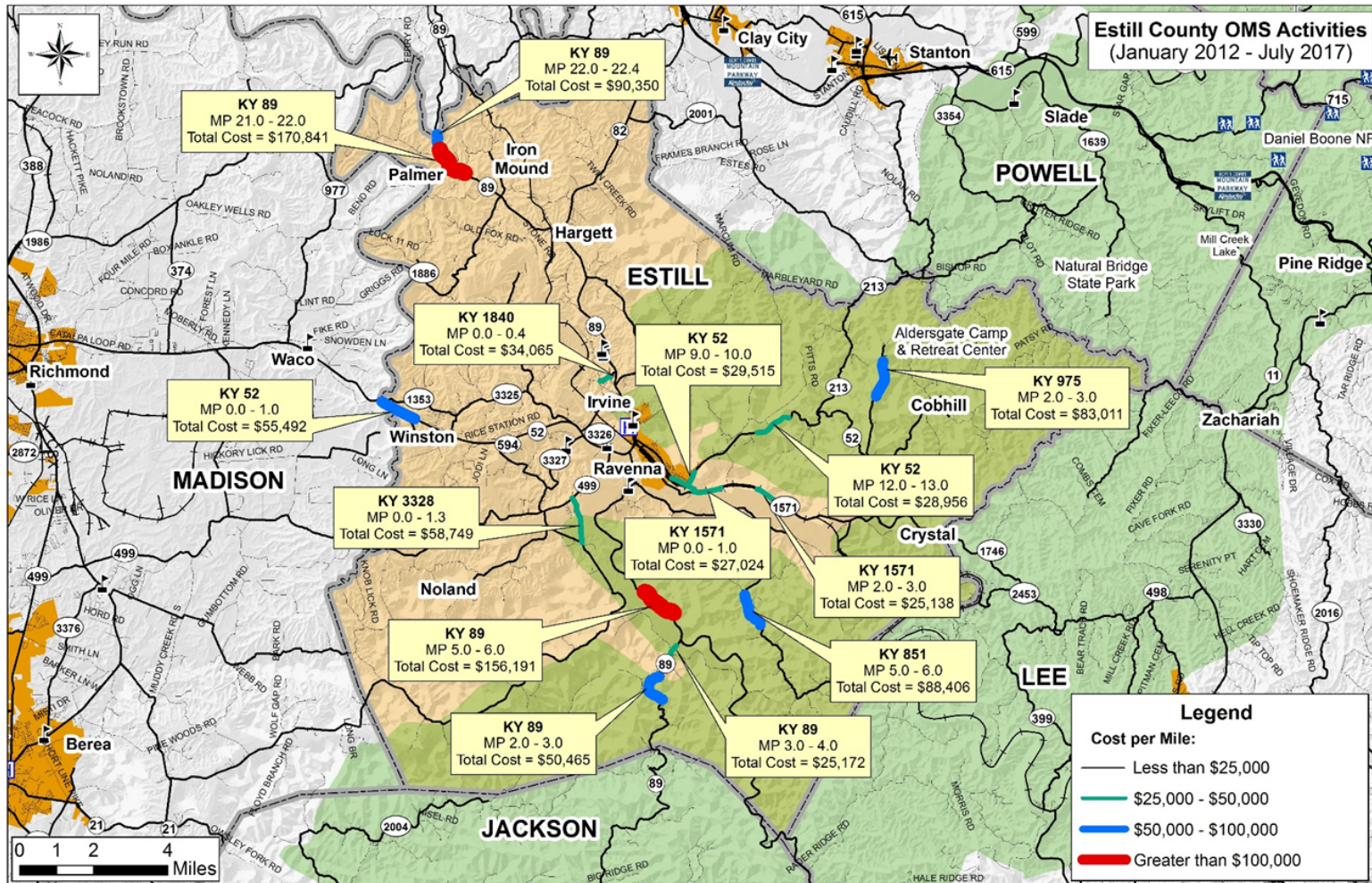


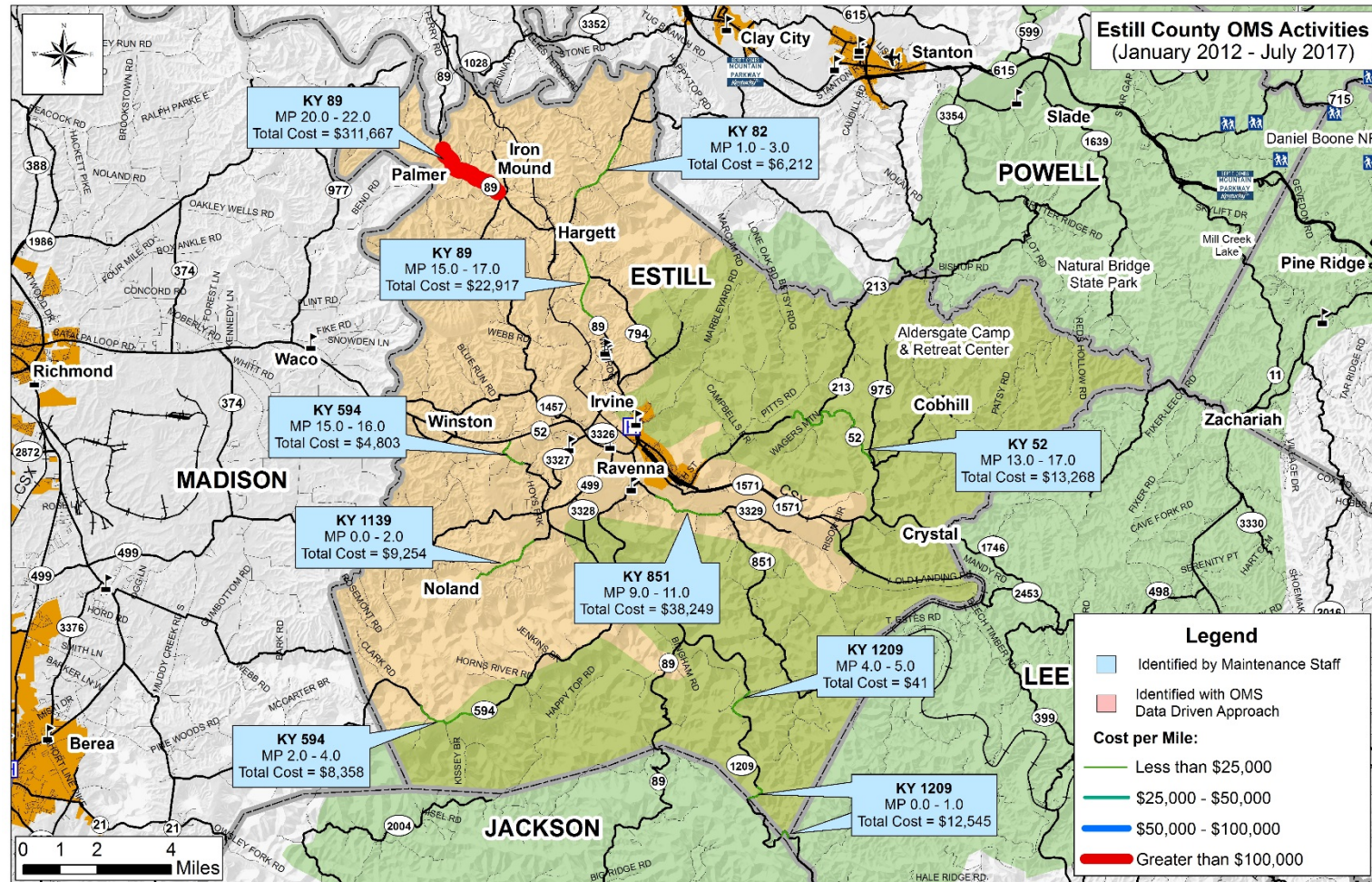
Figure 1: Estill County High Cost OMS Locations



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7. **KY 82** north of Hargett (MP 1.0 – 3.0)
    - Nearby spring causing water to come onto the road, pot holes
  8. **KY 89** near the Clark County Line (MP 20.0 – 22.0)
    - Drainage issues; paved every 2-3 years
  9. **KY 89** south of Hargett (MP 15.0 – 17.0)
    - Recent construction project in this area
    - Drainage from the project is running downhill towards the blacktop rather than away from the road
  10. **KY 594** near intersection with KY 52 (MP 15.0 – 16.0)
    - Drainage issues

**Findings:**

**Figure 2** below shows the combined results of the OMS data review and input from the Estill County Maintenance staff. Ten locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). There were no locations flagged as having recurring maintenance issues by the data driven OMS approach.



**Figure 2: Estill County Recurring Maintenance Locations**

**Powell County:**

**Location:** Stanton Section Office in Stanton, KY

**Date:** April 3, 2018

**Attendees:**

Jason Blackburn	KYTC – District 10 Planning
Brandon Campbell	KYTC – District 10 Maintenance
Steve Farmer	Stantec Consulting Services Inc.
Mikael Pelfrey	KYTC – Central Office Planning
J.R. Ware	KYTC – District 10 Maintenance
Jeff Willoughby	KYTC – District 10 Maintenance
Graham Winchester	Stantec Consulting Services Inc.

**Introduction:**

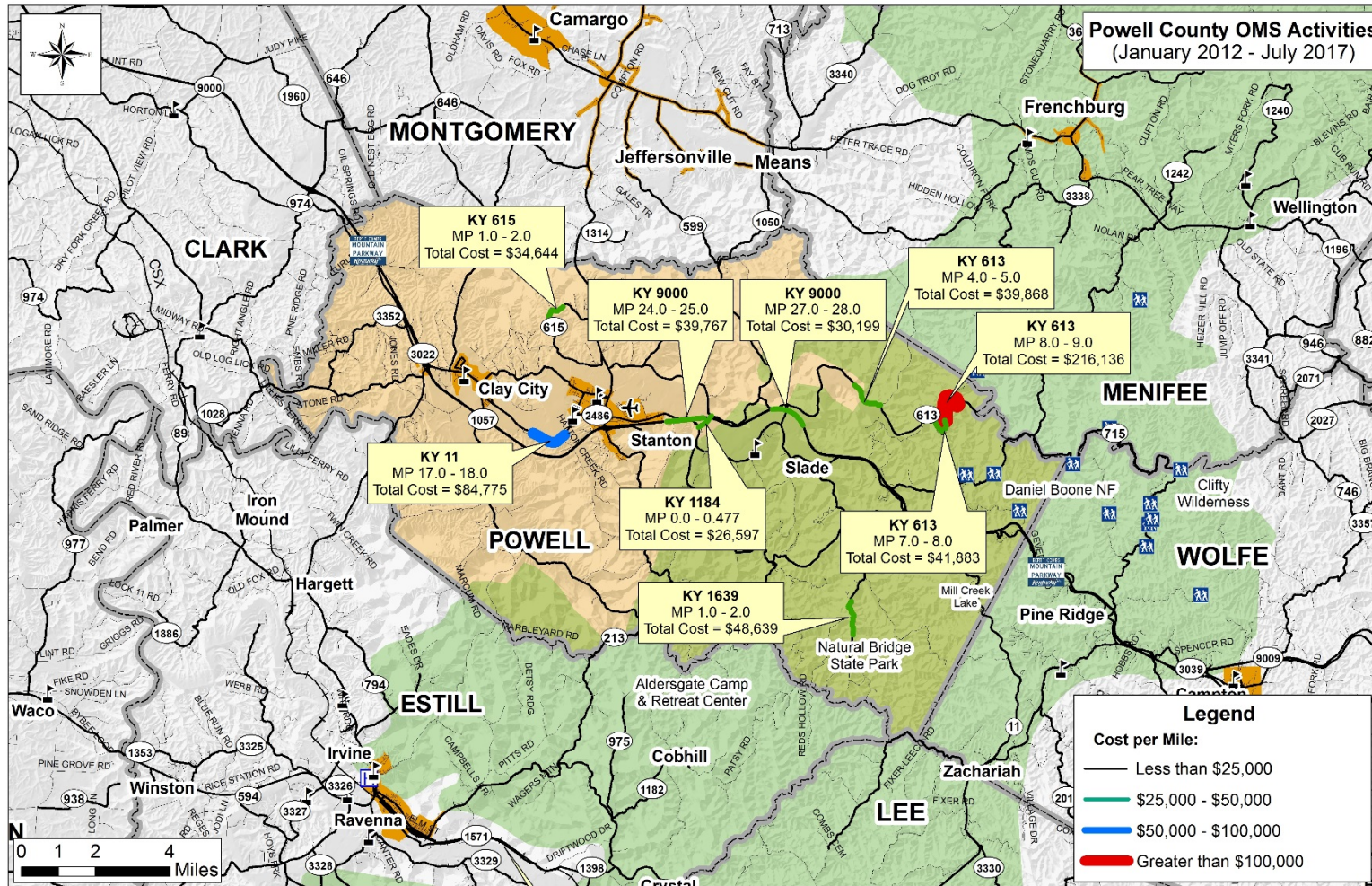
**Figure 3** shows the results of Stantec's preliminary screening process for Powell County. There were nine locations with per mile costs greater than \$25,000, however no locations were flagged during the data driven OMS approach as having recurring maintenance issues.

**Feedback:**

Based on a discussion with Powell County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **KY 2026** near Stanton (MP 2.0 – 4.0)
  - o Large, overweight trucks cause constant damage to the pavement; drainage issues
2. **KY 3354** east of Knowlton (MP 0.0 – 2.0)
  - o Rock slides – the road is breaking and setting down
3. **KY 615** north of Stanton (MP 1.0 – 2.0)
  - o Recurring rock slides; baskets installed recently
4. **KY 1057** near the Estill County Line (MP 8.0 – 10.0)
  - o Mountain route with grade issues; falling trees
5. **KY 613** near the Menifee County Line (MP 7.0 – 9.0)
  - o Recurring rock slides
6. **KY 11** near Natural Bridge (MP 1.0 – 2.0)
  - o Flooding issues





**Figure 3: Powell County High Cost OMS Locations**



- 
7. **KY 11** near Stanton (MP 17.0 – 18.0)
    - Rock slides and falling trees
    - A contractor recently dragged loose material from the mountain
  8. **KY 11** near the Montgomery County Line (MP 22.0 – 23.0)
    - Drainage issues; mud on the road after rain
    - Mud on the road after rain
  9. **KY 1028** near the Clark County Line (MP 0.0 – 1.0)
    - Recurring rock slides and falling trees
  10. **KY 15** near the Wolfe County Line (MP 0.0 – 2.0)
    - Recurring rock slides

**Findings:**

**Figure 4** below shows the combined results of the OMS data review and input from the Powell County Maintenance staff. Ten locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). There were no locations flagged as having recurring maintenance issues by the data driven OMS approach.

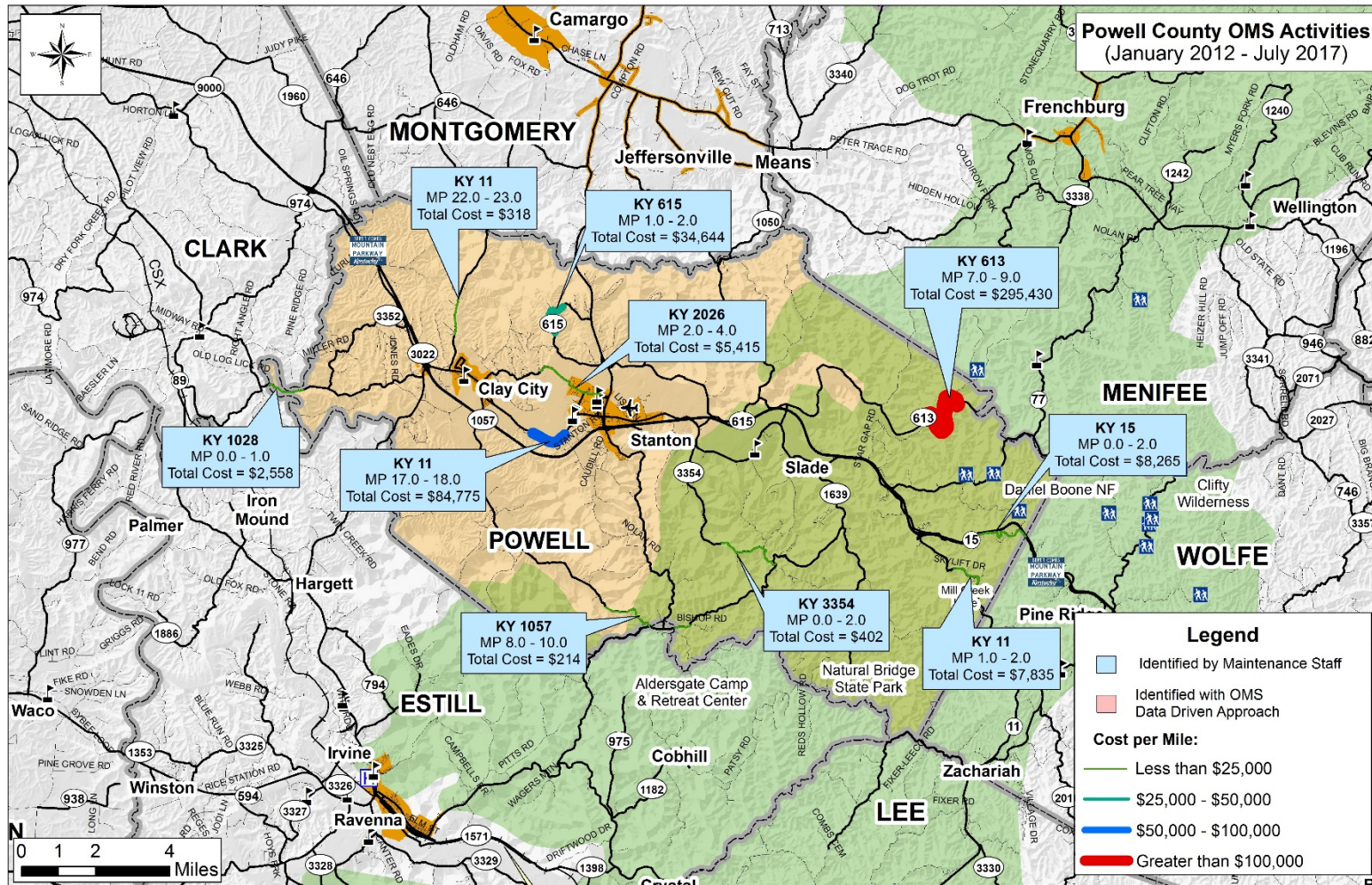


Figure 4: Powell County Recurring Maintenance Locations

**Breathitt County:**

**Location:** KYTC District 10 office in Jackson, KY

**Date:** April 4, 2018

**Attendees:**

Jason Blackburn	KYTC District 10 Planning
Steve Farmer	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.
Johnny Turner	KYTC – District 10 Maintenance
Jarrod Watts	KYTC – District 10 Maintenance

**Introduction:**

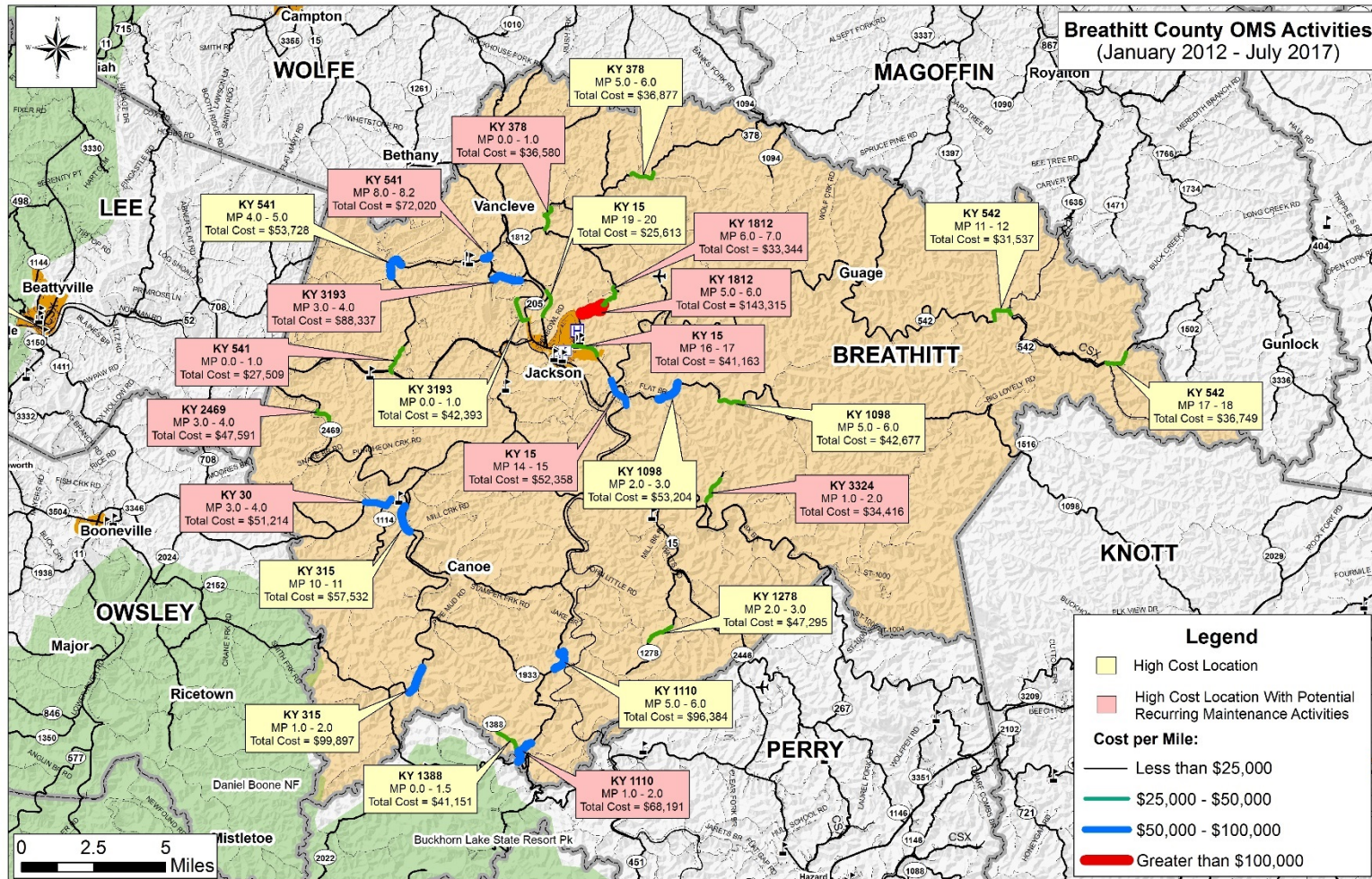
**Figure 5** shows the results of Stantec's preliminary screening process for Breathitt County. There were 25 locations with per mile costs greater than \$25,000, 12 of which were flagged during the data driven OMS approach as having recurring maintenance issues (shown in red).

**Feedback:**

Based on a discussion with Breathitt County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **KY 1110** near the Perry County Line (MP 0.0 – 1.0)
  - o Also identified by OMS approach
2. **KY 1110** near the Perry County Line (MP 3.0 – 4.0)
  - o Rock falls
3. **KY 1110** near Copland (MP 11.0 – 14.0)
  - o Rock falls
4. **KY 1278** near the Perry County Line (MP 1.0 – 3.0)
  - o Current construction project
5. **KY 1812** in Jackson (MP 0.0 – 4.0)
  - o Rock falls, pavement breaks
6. **KY 1812** north of Jackson (MP 6.0 – 7.0)
  - o Also identified by OMS approach
7. **KY 476** near Lost Creek (MP 8.0 – 9.0)
  - o Rock slides and pipe breaks
8. **KY 3193** north of Jackson (MP 3.0 – 4.0)
  - o Also identified by OMS approach
9. **KY 30** east of Jackson (MP 16.0 – 17.0)
10. **KY 542** to the east (MP 18.0 – 27.0)
11. **KY 2469** near the Lee County Line (MP 4.0 – 5.0)
  - o Needs ditching and patching





**Figure 5: Breathitt County High Cost OMS Locations**



- 12. KY 2469** near the Lee County Line (MP 6.0 – 7.0)
- 13. KY 315** near Canoe (MP 6.0 – 7.0)
- 14. KY 315** near Canoe (9.0 – 11.0)
- 15. KY 1419** near the Wolfe County Line (2.0 – 2.9)
- 16. KY 541** near War Creek (5.0 – 6.0)
  - Standing water on the road
- 17. KY 52** west of Jackson (MP 6.0 – 8.0)
  - Rockfalls near the tunnel
- 18. KY 1098** near Quicksand (MP 2.0 – 3.0)
  - Flooding on the road

**Findings:**

**Figure 6** below shows the combined results of the OMS data review and input from the Breathitt County Maintenance staff. There were 18 locations identified by the maintenance staff as having recurring maintenance issues (shown in blue). Of the 12 locations identified by the data driven OMS approach, the maintenance staff agreed that 10 had recurring issues (shown in red). Three locations were identified by both the maintenance staff and the OMS approach (shown in purple).

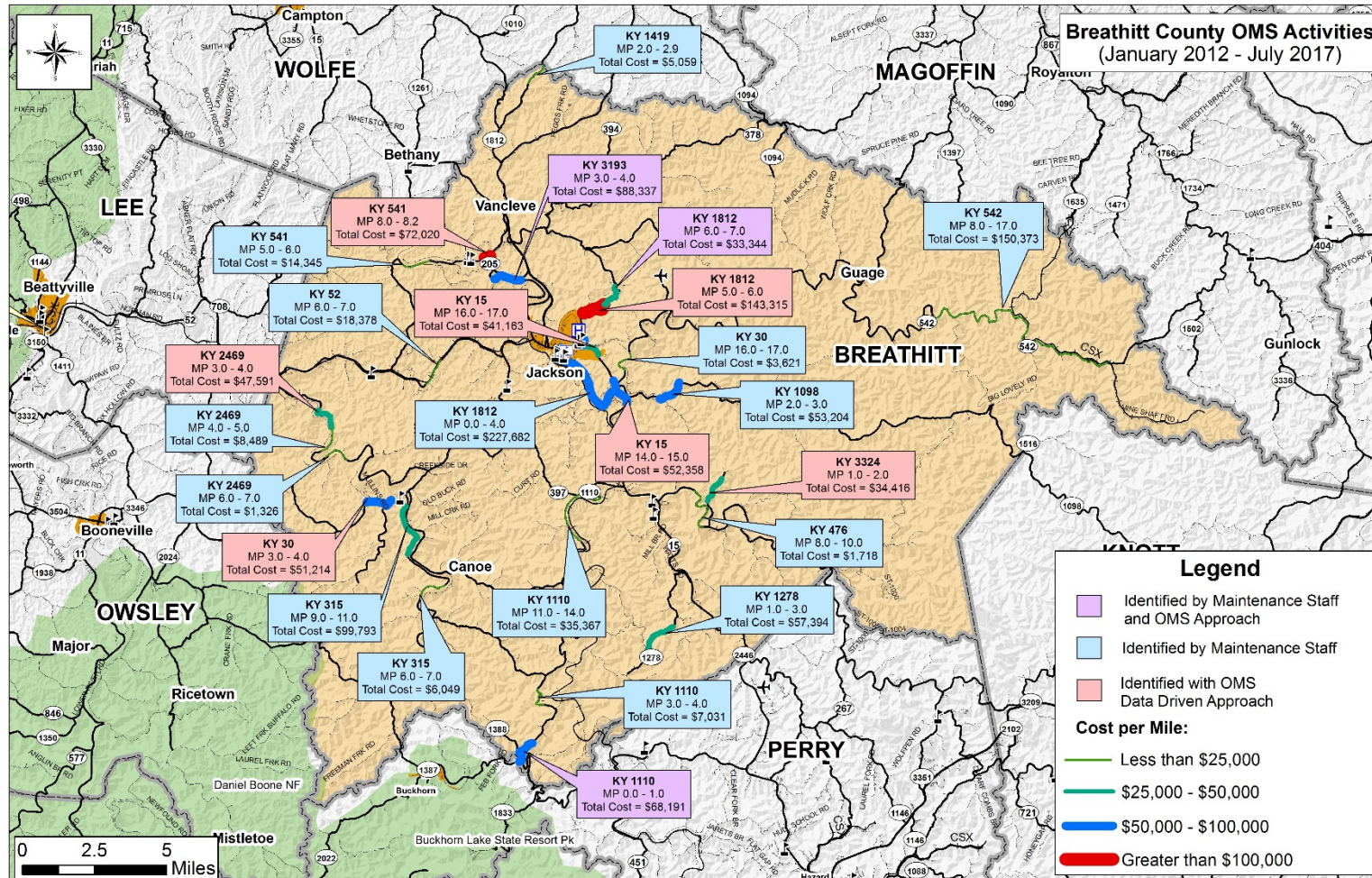


Figure 6: Breathitt County Recurring Maintenance Locations

**Lee County:**

**Location:** KYTC District 10 office in Jackson, KY

**Date:** April 4, 2018

**Attendees:**

Jason Blackburn	KYTC – District 10 Planning
Steve Farmer	Stantec Consulting Services Inc.
Jeff Gabbard	KYTC – District 10 Maintenance
Len Harper	Stantec Consulting Services Inc.
Jarrod Watts	KYTC – District 10 Maintenance

**Introduction:**

**Figure 7** shows the results of Stantec's preliminary screening process for Lee County. There were 12 locations with per mile costs greater than \$25,000, four of which were flagged during the data driven OMS approach as having recurring maintenance issues (shown in red).

**Feedback:**

Based on a discussion with Lee County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **KY 587** near the Owsley County Line (MP 8.0 – 10.0)
  - Pavement breaks, rock slides
2. **KY 399** west of Beattyville (MP 5.0 – 6.0)
  - Also identified by OMS approach
3. **KY 399** near the Owsley County Line (MP 1.0 – 2.0)
4. **KY 52** near Beattyville (MP 13.0 – 14.0)
  - Constant rock falls
5. **KY 52** near the Breathitt County Line (MP 23.0 – 24.4)
6. **KY 52** east of Beattyville (MP 19.0 – 20.0)
7. **KY 1144** in Beattyville (MP 0.0 – 2.0)
  - Pavement sliding
8. **KY 2017** near the Wolfe County Line (MP 5.0 – 6.0)
  - Also identified by OMS approach
9. **KY 2453** near the Estill County Line (MP 1.0 – 2.6)
  - Sink hole
10. **KY 498** north of Beattyville (MP 0.0 – 2.0)
  - Constant shoulder patching
11. **KY 708** near the Breathitt County Line (MP 5.0 – 7.0)
12. **KY 1411** south of Beattyville (MP 3.0 – 4.0)



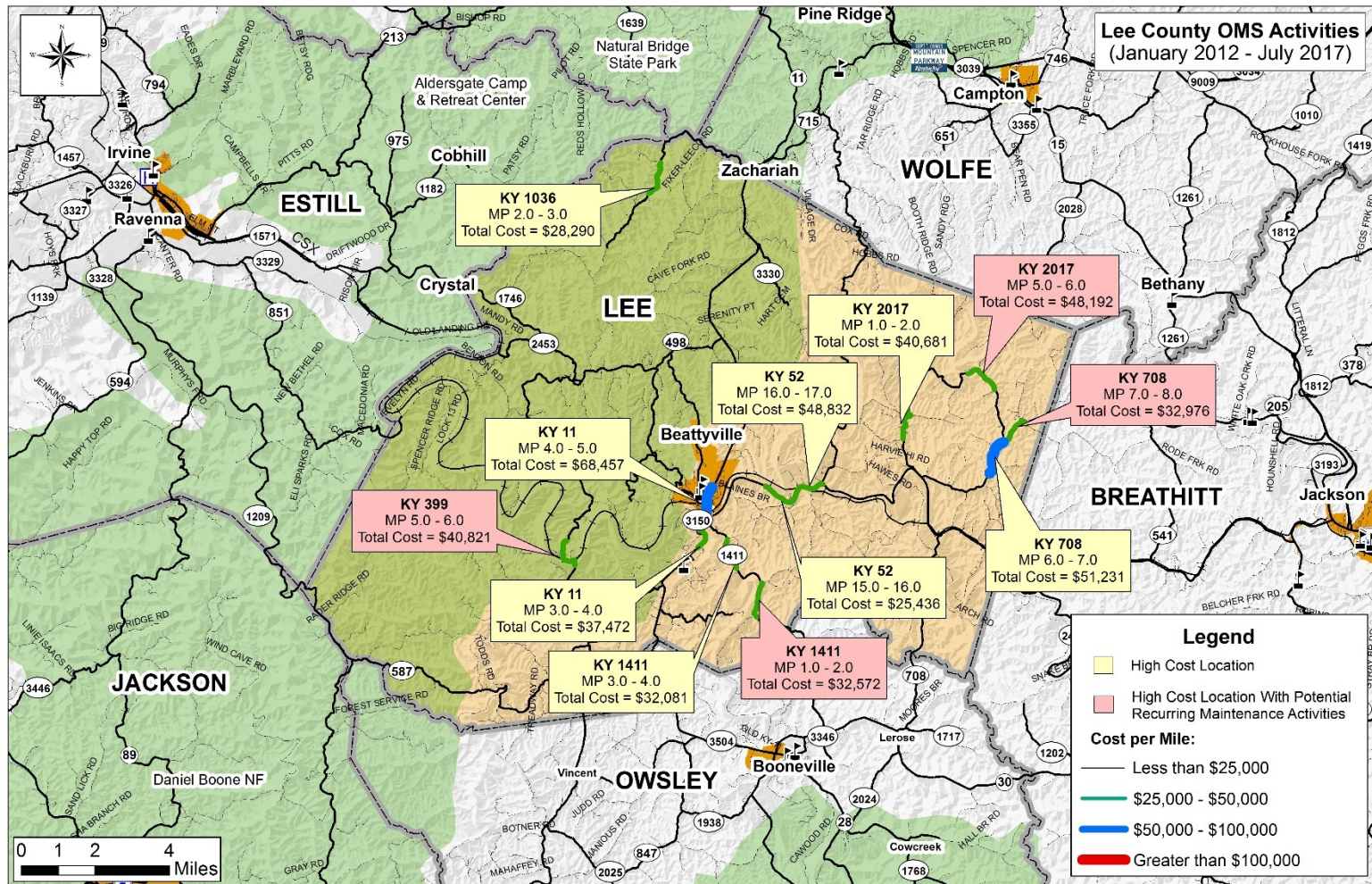


Figure 7: Lee County High Cost OMS Locations



**Findings:**

**Figure 8** below shows the combined results of the OMS data review and input from the Lee County Maintenance staff. Twelve locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). Of the four locations identified by the data driven OMS approach, the maintenance staff agreed that three had recurring issues (shown in red). Two locations were identified by both the maintenance staff and the OMS approach (shown in purple).

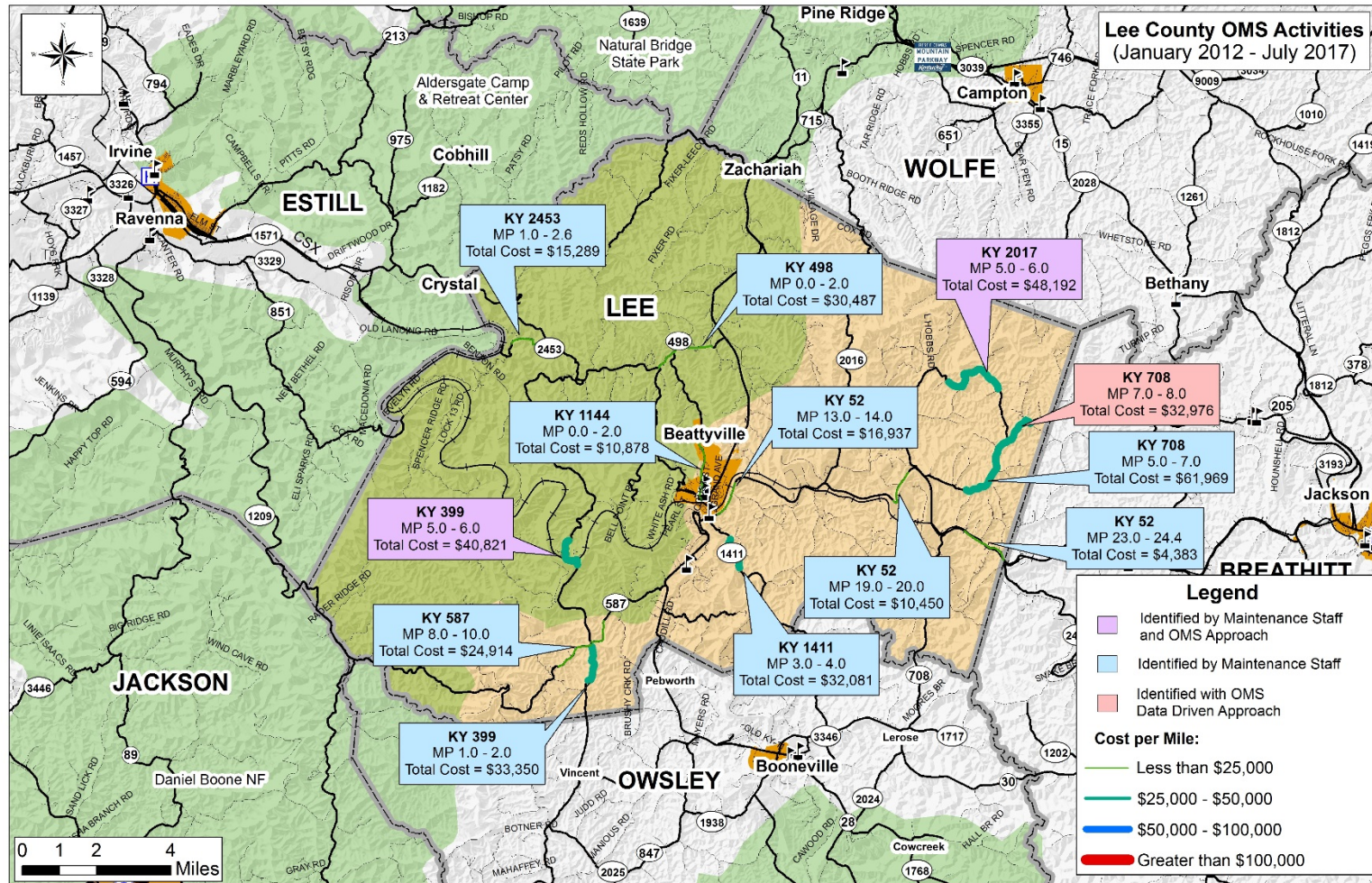


Figure 8: Lee County Recurring Maintenance Locations

**Owsley County:**

**Location:** KYTC District 10 office in Jackson, KY

**Date:** April 4, 2018

**Attendees:**

Brian Aldridge	Stantec Consulting Services Inc.
Jason Blackburn	KYTC – District 10 Planning
Steve Farmer	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.
Jason Minter	KYTC – District 10 Maintenance
Mikael Pelfrey	KYTC – Central Office Planning
Aric Skaggs	KYTC – District 10 Maintenance
Travis Watts	KYTC – District 10 Maintenance

**Introduction:**

**Figure 9** shows the results of Stantec's preliminary screening process for Owsley County. There were eight locations with per mile costs greater than \$25,000, four of which were flagged during the data driven OMS approach as having recurring maintenance issues (shown in red).

**Feedback:**

Based on a discussion with Owsley County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **KY 11** near the Clay County Line (MP 0.0 – 2.0)
2. **KY 11** near the Clay County Line (MP 2.0 – 4.0)
3. **KY 11** near Major (MP 6.0 – 7.0)
  - o Constant patching
4. **KY 11** south of Booneville (MP 8.0 – 9.0)
5. **KY 11** in Booneville (MP 11.0 – 12.0)
6. **KY 28** south of Booneville (MP 2.0 – 3.0)
  - o Also identified by OMS approach
7. **KY 28** near the Breathitt County Line (MP 10.0 – 10.8)
8. **KY 1071** near the Jackson County Line (MP 2.0 – 4.0)
  - o Patching every year; coal trucks wearing pavement
9. **KY 577** near the Clay County Line (MP 0.0 – 1.0)
  - o Must be paved and ditched every year
10. **KY 846** near Sturgeon (MP 2.0 – 4.0)
  - o Hillside is collapsing
11. **KY 2024** near the Clay County Line (MP 0.0 – 2.0)



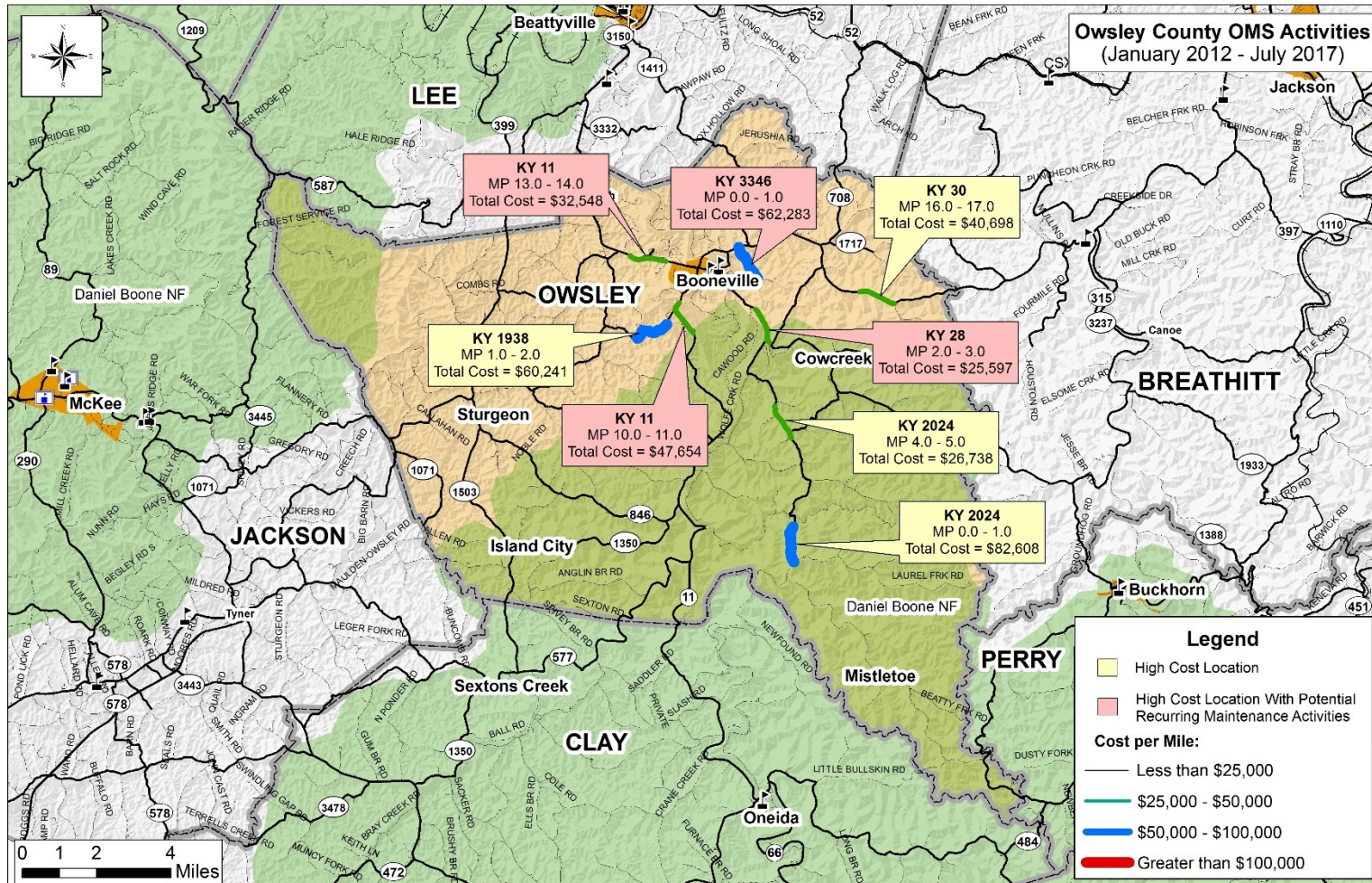


Figure 9: Owsley County High Cost OMS Locations



**Findings:**

**Figure 10** below shows the combined results of the OMS data review and input from the Owsley County Maintenance staff. Eleven locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). Of the four locations identified by the data driven OMS approach, the maintenance staff agreed that three had recurring issues (shown in red). One location was identified by both the maintenance staff and the OMS approach (shown in purple).

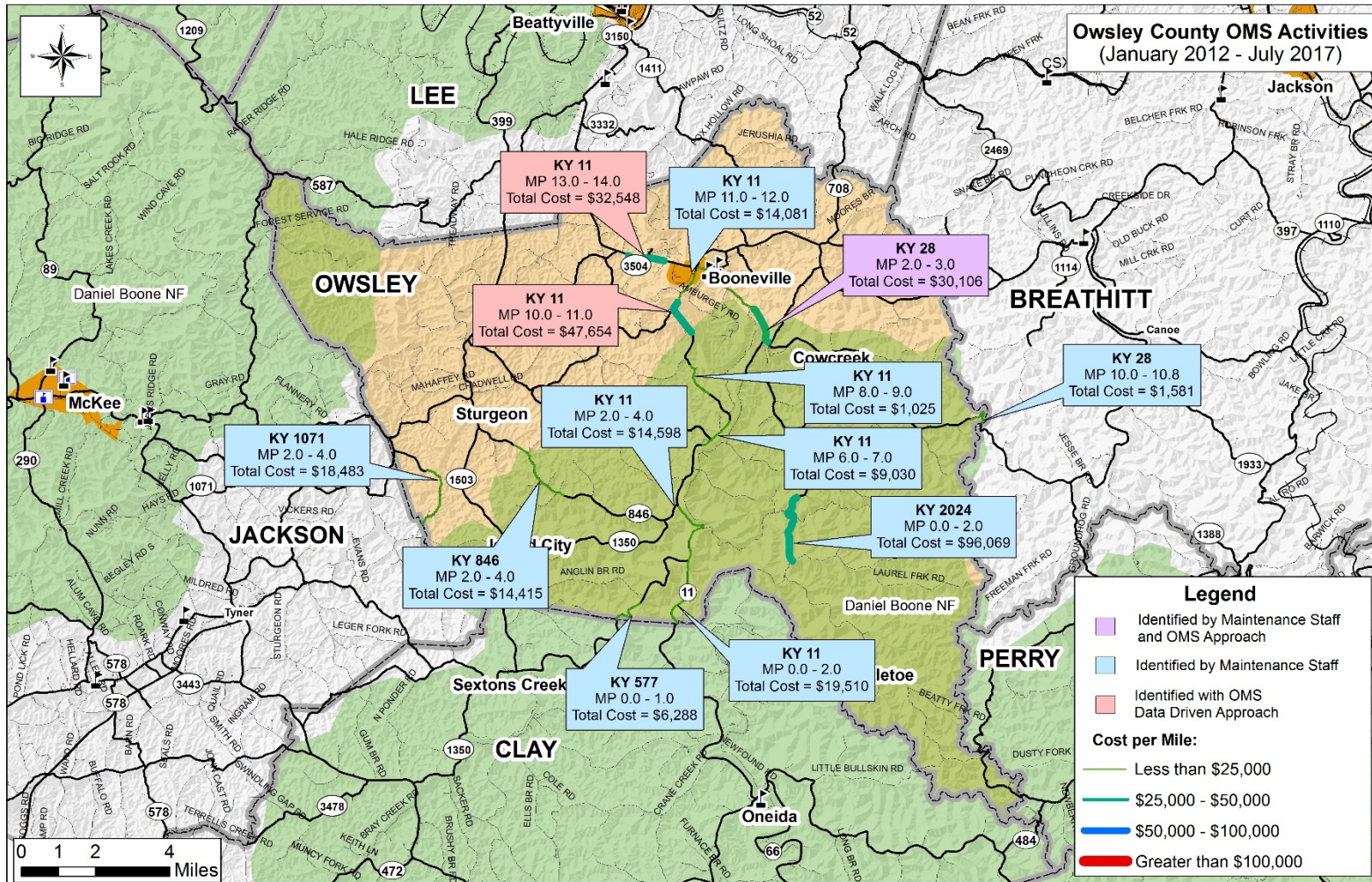


Figure 10: Owsley County Recurring Maintenance Locations

**Wolfe County:**

**Location:** KYTC District 10 office in Jackson, KY

**Date:** April 4, 2018

**Attendees:**

Jason Blackburn	KYTC – District 10 Planning
Steve Farmer	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.
Carl Pence	KYTC – District 10 Maintenance
Jarrod Watts	KYTC – District 10 Maintenance
Hank Wireman	KYTC – District 10 Maintenance

**Introduction:**

**Figure 11** shows the results of Stantec's preliminary screening process for Wolfe County. There were nine locations with per mile costs greater than \$25,000, however no locations were flagged during the data driven OMS approach as having recurring maintenance issues.

**Feedback:**

Based on a discussion with Wolfe County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **KY 3356** near Hazel Green (MP 2.0 – 3.0)
  - o Constant drilling steel along the ridge line
2. **KY 2028** near the Lee County Line (MP 0.0 – 2.0)
  - o Patching
3. **KY 1419** near the Breathitt County Line (MP 1.0 – 3.0)
  - o Drilling steel
4. **KY 9009** east of Campton (MP 47.0 – 50.0)
  - o Rockslides
5. **KY 715** near the Lee County Line (MP 0.0 – 2.0)
  - o Rockslides
6. **KY 191** near Hazel Green (MP 7.0 – 9.0)
  - o Pavement dropping
7. **KY 191** near the Morgan County Line (MP 13.0 – 14.0)
8. **KY 1261** near the Breathitt County Line (MP 0.0 – 2.0)
  - o Slides and ditching
9. **KY 3357** north of Campton (MP 0.0 – 2.0)



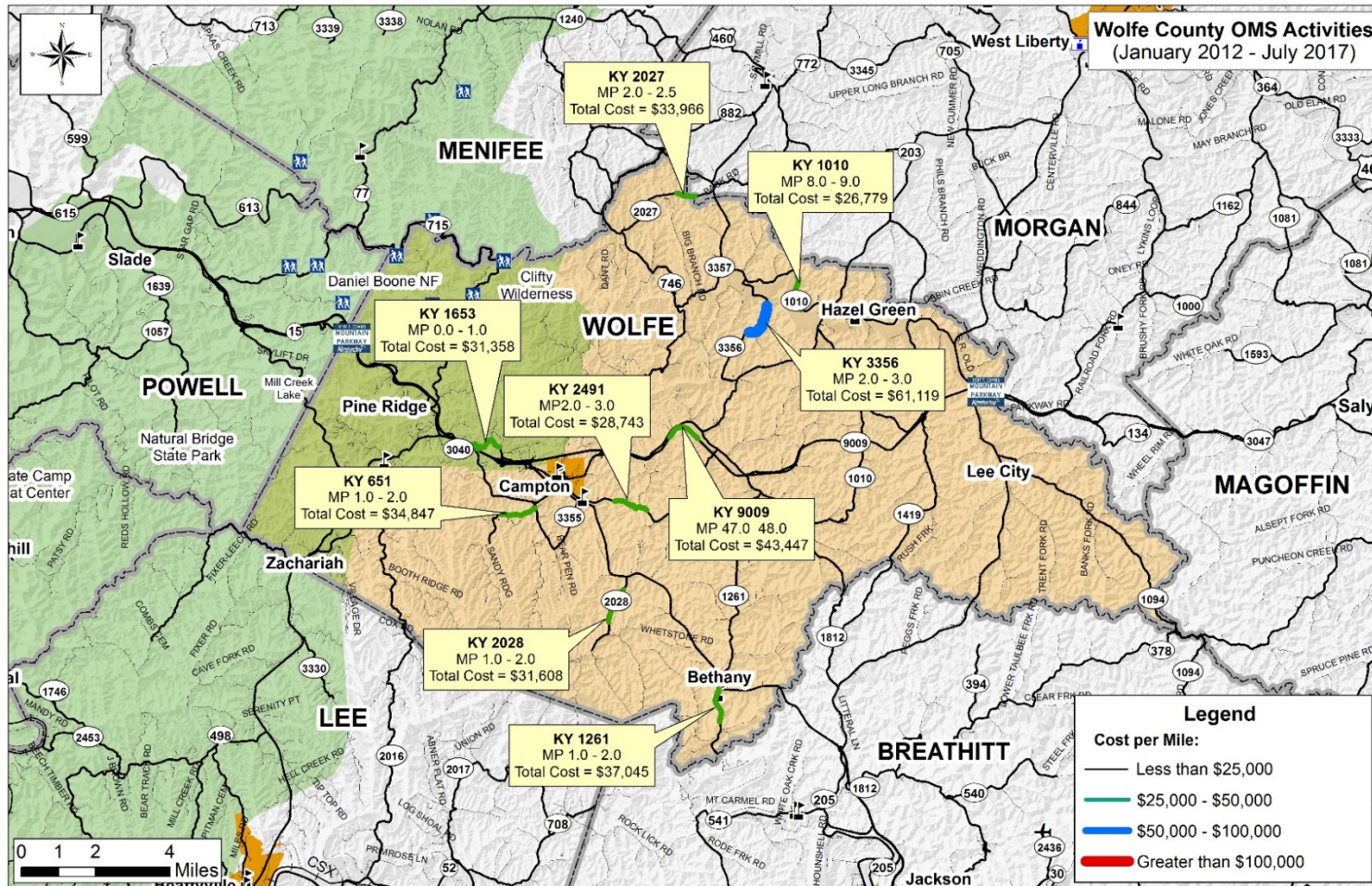


Figure 11: Wolfe County High Cost OMS Locations

**Findings:**

**Figure 12** below shows the combined results of the OMS data review and input from the Wolfe County Maintenance staff. Nine locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). There were no locations flagged as having recurring maintenance issues by the data driven OMS approach.



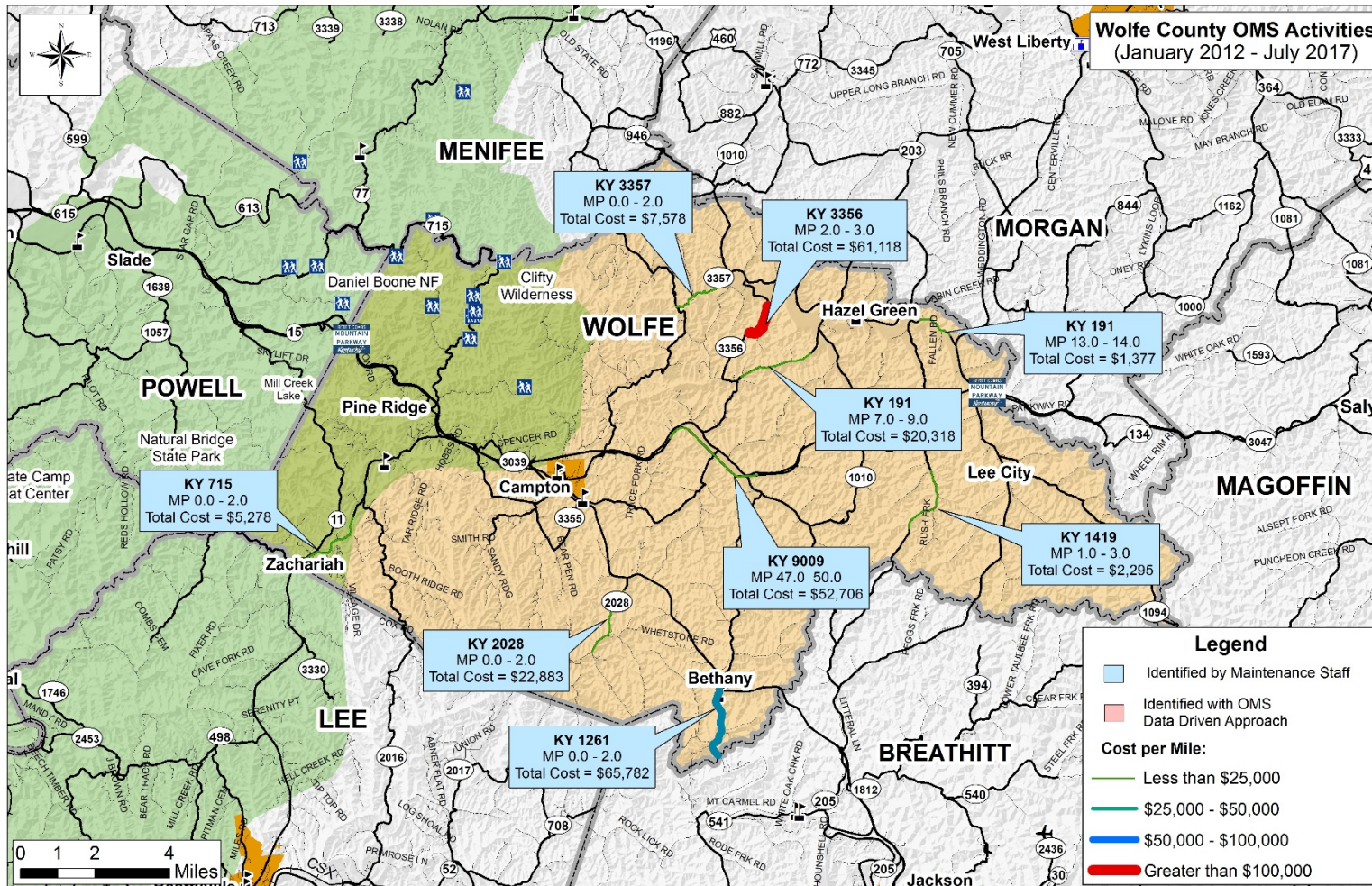


Figure 12: Wolfe County Recurring Maintenance Locations



**Magoffin County:**

**Location:** KYTC District 10 office in Jackson, KY

**Date:** April 19, 2018

**Attendees:**

Matthew Allen	KYTC – District 10 Maintenance
Jason Blackburn	KYTC – District 10 Planning
Barry R. Evans	KYTC – District 10 Maintenance
Stevin Howard	KYTC – District 10 Maintenance
Steve Farmer	Stantec Consulting Services Inc.
Wes Ratliff	KYTC – District 10 Maintenance
Graham Winchester	Stantec Consulting Services Inc.

**Introduction:**

**Figure 13** shows the results of Stantec's preliminary screening process for Magoffin County. There were 14 locations with per mile costs greater than \$25,000, however no locations were flagged during the data driven OMS approach as having recurring maintenance issues (shown in red).

**Feedback:**

Based on a discussion with Magoffin County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **KY 3336** near Gunlock (MP 0.0 – 2.0)
  - o Steel is drilled in this area every year
2. **KY 542** near the Breathitt County Line (MP 0.0 – 6.0)
  - o Steel is drilled in this area every year
3. **KY 1635** near the Breathitt County Line (MP 0.0 – 6.0)
  - o Previously a coal haul road – road is often flooded, and banks must be fixed
4. **KY 867** north of Royalton (MP 0.0 – 5.0)
  - o Flooding problems during heavy rain
5. **KY 30** near the Breathitt County Line (MP 0.0 – 2.0)
  - o Pipes are constantly breaking off
6. **KY 7** near Salyersville (MP 21.0 – 23.0)
  - o There are ditch issues and the road is constantly breaking off
7. **KY 378** near the Breathitt County Line (MP 0.0 – 9.0)
  - o There are ditch issues and the road is constantly setting down

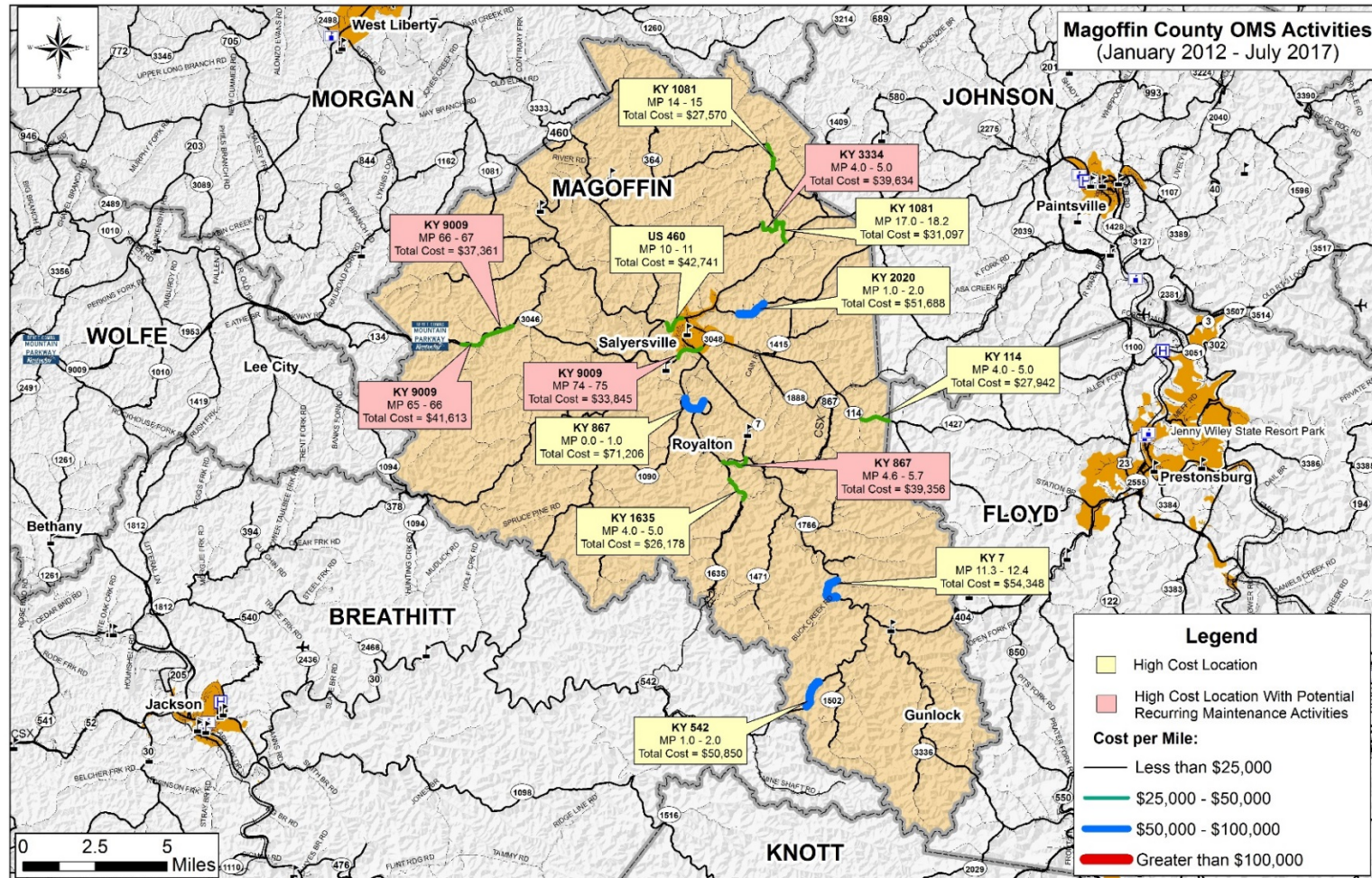


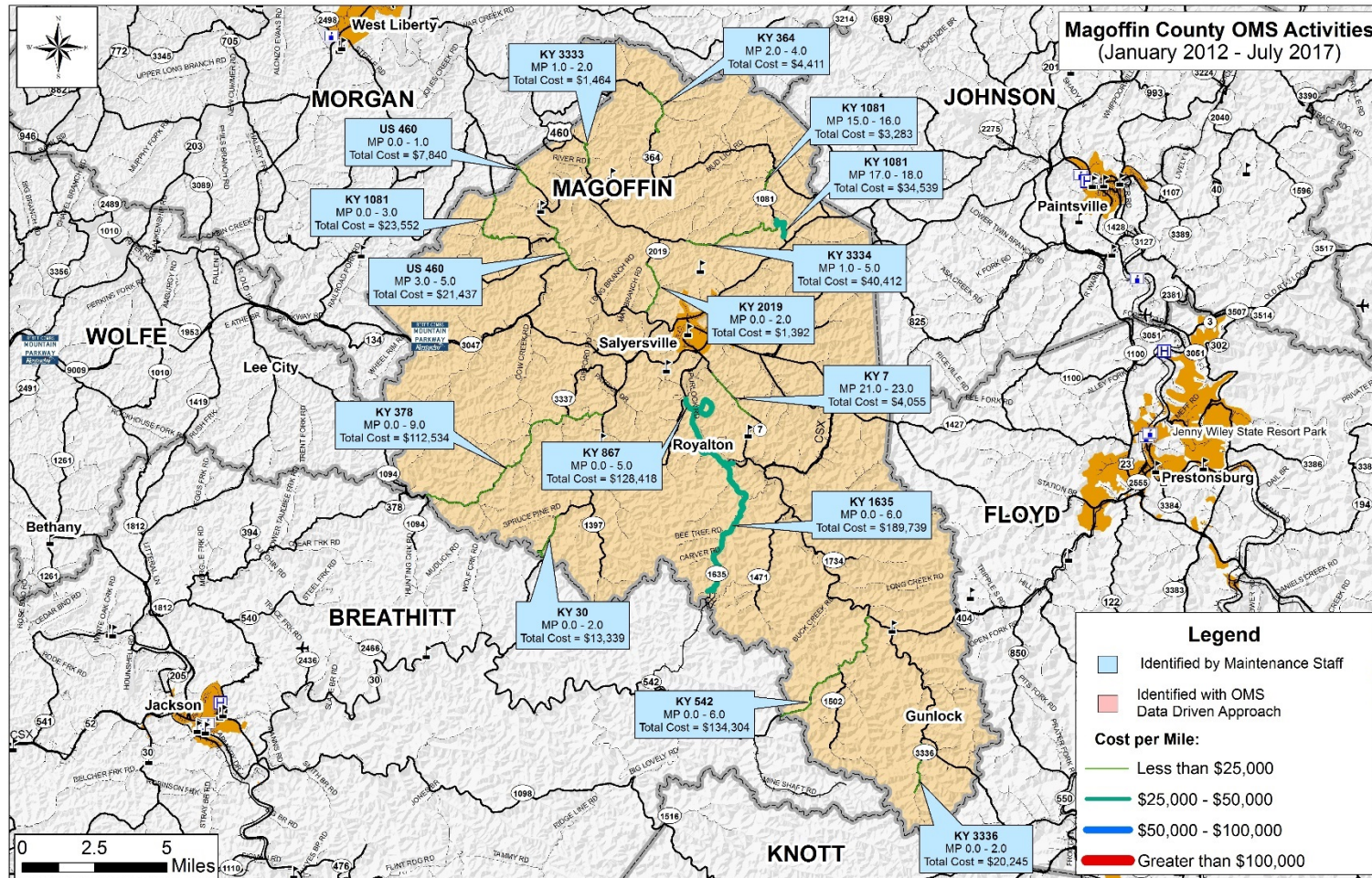
Figure 13: Magoffin County High Cost OMS Locations

8. **KY 2019** north of Salyersville (MP 0.0 – 2.0)
  - Constant pot holes and road breaking off
9. **KY 3334** north of Salyersville (MP 1.0 – 5.0)
  - Constant rock slides
10. **KY 1081** north of Falcon (MP 15.0 – 16.0)
  - Constant rock falls
11. **KY 1081** north of Falcon (MP 17.0 – 18.0)
  - Constant rock falls
12. **KY 364** near Logville (MP 2.0 – 4.0)
  - This road is close to a creek and has constant rock falls
13. **KY 3333** near the Morgan County Line (MP 1.0 – 2.0)
  - The road is constantly slipping down
14. **US 460** near the Morgan County Line (MP 0.0 – 1.0)
  - Constant rock falls
15. **US 460** near the Morgan County Line (MP 3.0 – 5.0)
  - Constant rock falls
16. **KY 1081** near the Morgan County Line (MP 0.0 – 3.0)
  - Constant rock falls

**Findings:**

**Figure 14** below shows the combined results of the OMS data review and input from the Magoffin County Maintenance staff. Sixteen locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). Of the five locations identified by the data driven OMS approach, the maintenance staff agreed that none had recurring issues.





**Figure 14: Magoffin County Recurring Maintenance Locations**

**Menifee County:**

**Location:** KYTC District 10 office in Jackson, KY

**Date:** April 19, 2018

**Attendees:**

Jason Blackburn	KYTC – District 10 Planning
John Clifford	KYTC – District 10 Maintenance
Barry R. Evans	KYTC – District 10 Maintenance
Steve Farmer	Stantec Consulting Services Inc.
Wes Ratliff	KYTC – District 10 Maintenance
Darrell Rogers	KYTC – District 10 Maintenance
Graham Winchester	Stantec Consulting Services Inc.

**Introduction:**

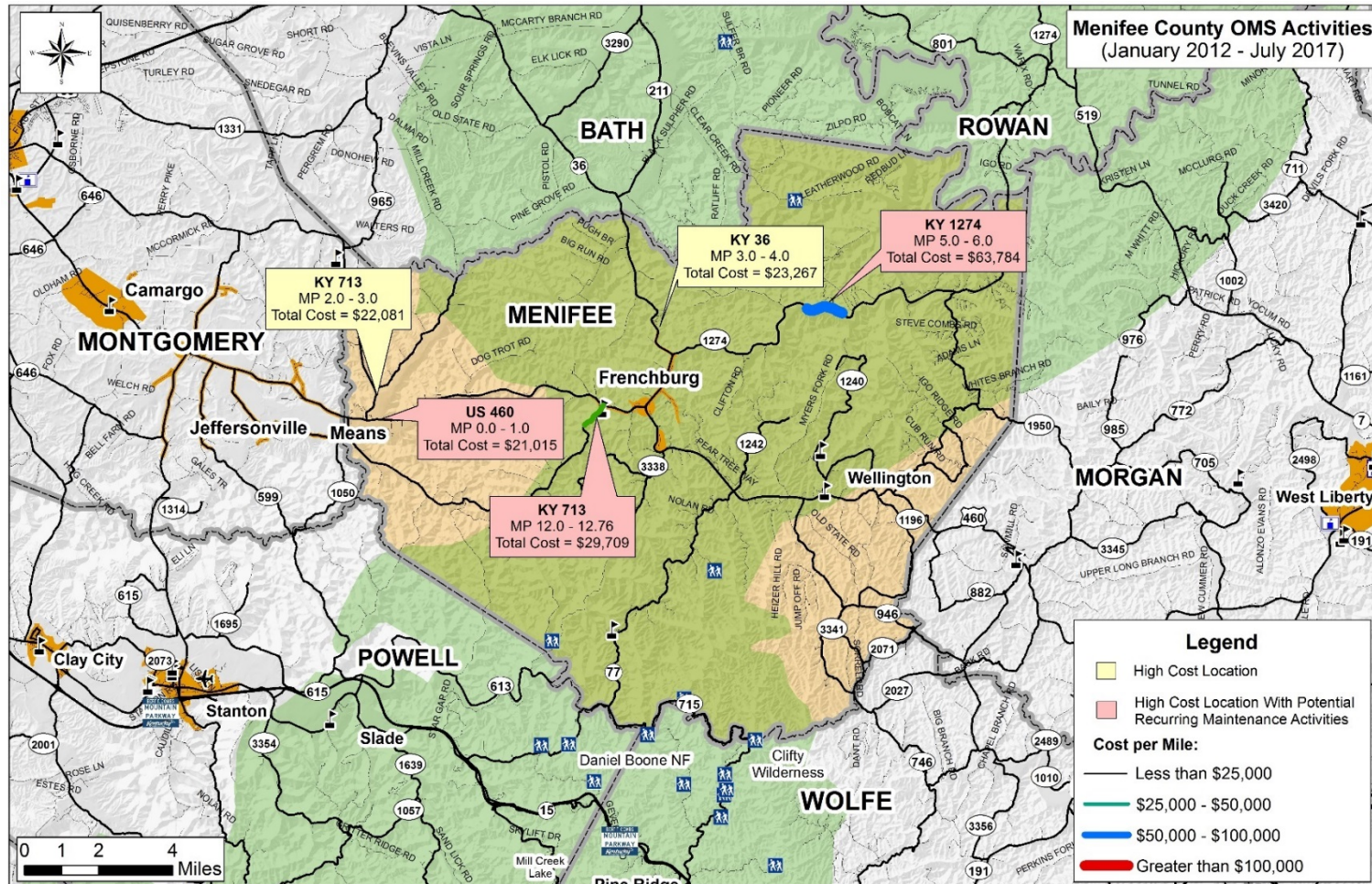
**Figure 15** shows the results of Stantec's preliminary screening process for Menifee County. There were five locations with per mile costs greater than \$25,000, three of which were flagged during the data driven OMS approach as having recurring maintenance issues (shown in red).

**Feedback:**

Based on a discussion with Menifee County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **US 460** near Wellington (MP 15.0 – 16.0)
  - o Flooding near the Elementary School
2. **US 460** near Frenchburg (MP 7.0 – 8.0)
  - o Flooding during heavy rainfall
3. **US 460** near the Montgomery County Line (MP 0.0 – 1.0)
  - o Flooding on the roadway during heavy rainfall
4. **KY 713** near the Montgomery County Line (MP 3.0 – 4.0)
  - o Flooding, road has to be closed during heavy rainfall
5. **KY 1240** north of Wellington (MP 4.0 – 5.0)
  - o Recurring rockfalls
6. **KY 1274** (MP 0.0 – 1.0)
  - o Recurring rockfalls
7. **KY 1274** (MP 2.0 – 3.0)
  - o Recurring rockfalls
8. **KY 1274** (MP 4.0 – 5.0)
  - o Recurring rockfalls
9. **KY 1274** (MP 8.0 – 9.0)
  - o Recurring rockfalls





**Figure 15: Menifee County High Cost OMS Locations**



- 10. KY 1274** (MP 13.0 – 13.4)
  - Recurring rockfalls
- 11. KY 36** near the Bath County Line (MP 0.0 – 1.0)
  - Recurring rockslides
- 12. KY 77** near the Powell County Line (MP 1.0 – 2.0)
  - Recurring rock and mud slides
- 13. KY 715** near the Wolfe County Line (MP 1.0 – 6.0)
  - Recurring issues throughout the corridor
  - Rock Slides

**Findings:**

**Figure 16** below shows the combined results of the OMS data review and input from the Menifee County Maintenance staff. Thirteen locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). Of the three locations identified by the data driven OMS approach, the maintenance staff agreed that one had recurring issues (shown in red).

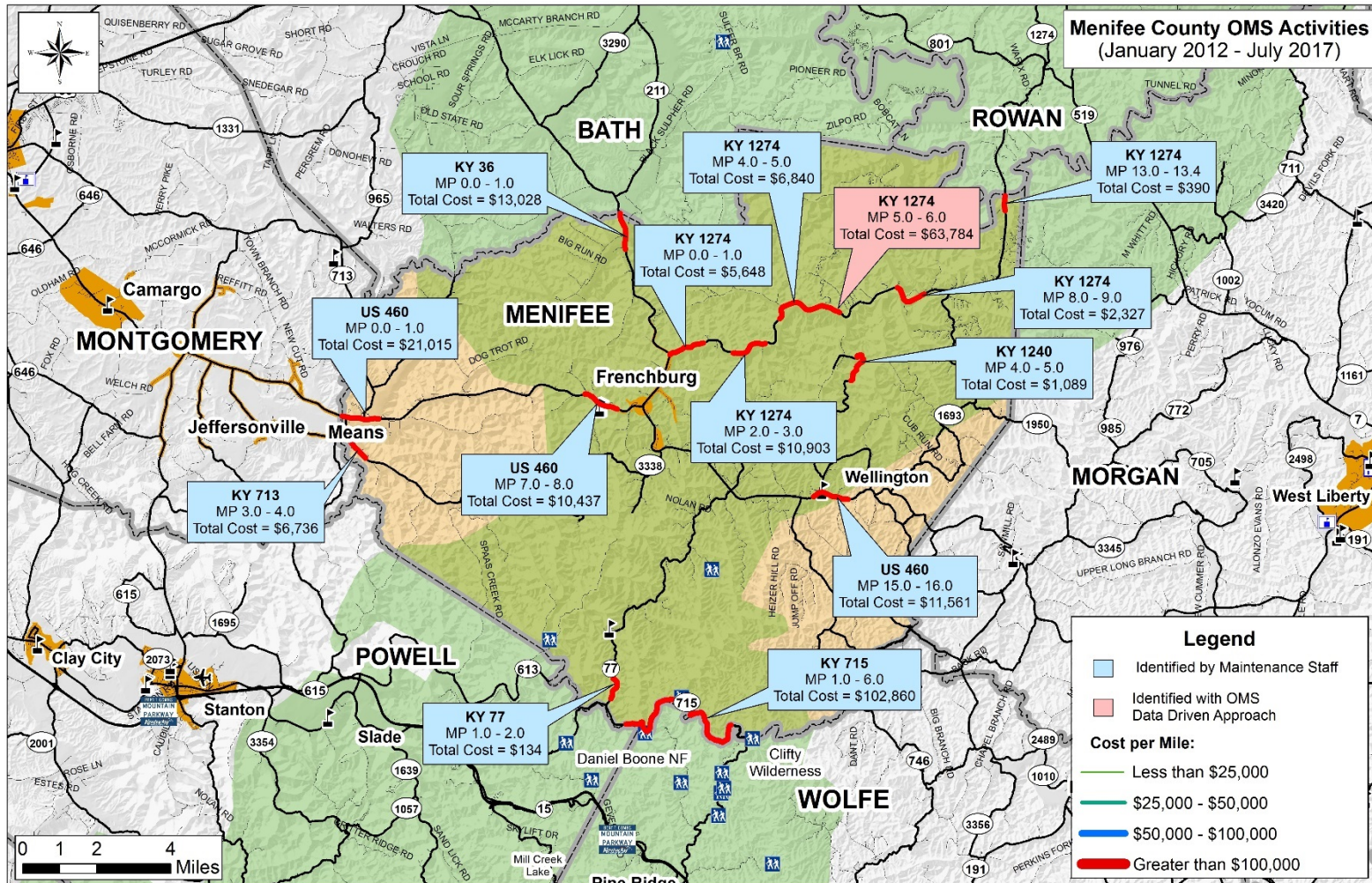


Figure 16: Menifee County Recurring Maintenance Locations

**Morgan County:**

**Location:** KYTC District 10 office in Jackson, KY

**Date:** April 19, 2018

**Attendees:**

Jason Blackburn	KYTC – District 10 Planning
Barry R. Evans	KYTC – District 10 Maintenance
Steve Farmer	Stantec Consulting Services Inc.
Fredrick Hylton	KYTC – District 10 Maintenance
Landon Lawson	KYTC – District 10 Maintenance
Wes Ratliff	KYTC – District 10 Maintenance
Graham Winchester	Stantec Consulting Services Inc.

**Introduction:**

**Figure 17** shows the results of Stantec's preliminary screening process for Morgan County. There were 14 locations with per mile costs greater than \$25,000, one of which was flagged during the data driven OMS approach as having recurring maintenance issues (shown in red).

**Feedback:**

Based on a discussion with Morgan County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **US 460** near the Magoffin County Line (MP 27.0 – 28.5)
  - o Falling rocks, tree clearing several times per year
2. **US 460** near the Magoffin County Line (24.5 – 25.5)
  - o The pavement is constantly failing
3. **KY 205** in West Liberty (16.0 – 18.0)
  - o The road was recently widened and is now closer to the hill. Falling rock is a problem
4. **KY 191** to the south (MP 6.0 – 9.0)
  - o Rockfalls
5. **KY 1000** near the Magoffin County Line (MP 4.5 – 5.0)
  - o Constantly drilling steel
6. **KY 1010** near the Wolfe County Line (MP 1.0 – 2.0)
  - o The hill is slipping down and there is a spring underneath pushing the road up. The maintenance crew is digging and milling yearly.
7. **KY 772** west of West Liberty (MP 7.0 – 8.0)
  - o Constantly drilling steel



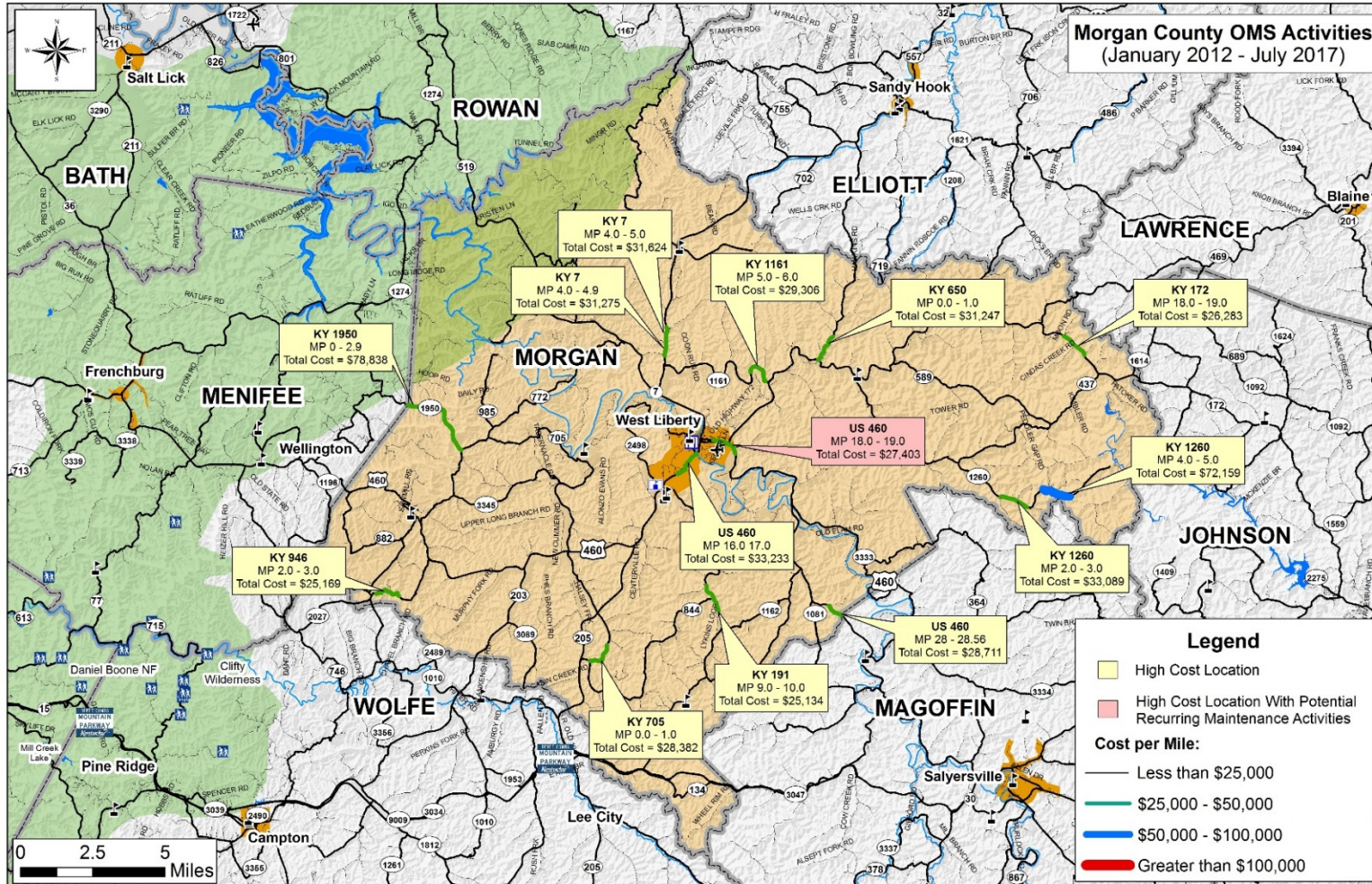


Figure 17: Morgan County High Cost OMS Locations

8. **KY 3420** @ KY 1002
  - o The constantly wet road causes potholes. Trees need to be cut, and the shoulder needs to be widened
9. **KY 711** north of West Liberty (MP 3.0 – 4.0)
  - o The road has to be shut down constantly because of standing water and debris
10. **KY 7** north of West Liberty (MP 3.5 – 4.5)
  - o Bad curve, falling rock
11. **KY 2498** near West Liberty (MP 3.0 – 5.0)
  - o Constantly drilling steel
  - o This would be a good candidate for a widening project
12. **KY 589** to the east
  - o Constantly drilling steel
13. **KY 437** to the east
  - o Constantly drilling steel
14. **KY 1260** to the east
  - o Constantly drilling steel

**Findings:**

**Figure 18** below shows the combined results of the OMS data review and input from the Morgan County Maintenance staff. Fourteen locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). The maintenance staff agreed that the location identified by the data driven OMS approach should not be flagged as having recurring issues.



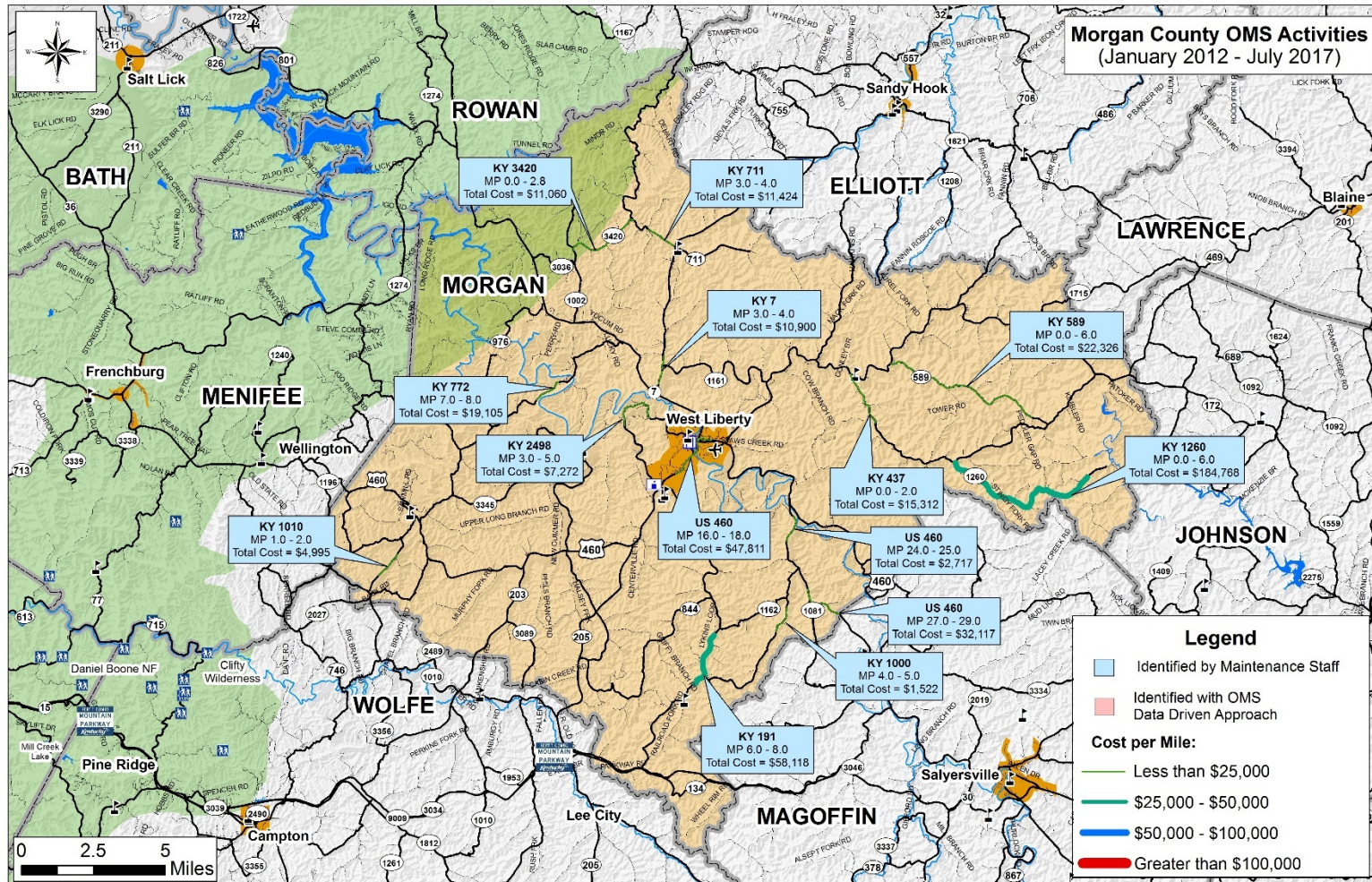


Figure 18: Morgan County Recurring Maintenance Locations



**Perry County:**

**Location:** KYTC District 10 office in Jackson, KY

**Date:** April 19, 2018

**Attendees:**

Jason Blackburn	KYTC – District 10 Planning
Donnie Caywood	KYTC – District 10 Maintenance
Jason Blackburn	KYTC – District 10
Brandon Campbell	KYTC – District 10 Maintenance
Steve Farmer	Stantec Consulting Services Inc.
Travis Watts	KYTC – District 10 Maintenance
Graham Winchester	Stantec Consulting Services Inc.

**Introduction:**

**Figure 19** shows the results of Stantec's preliminary screening process for Perry County. There were 28 locations with per mile costs greater than \$25,000, fourteen of which were flagged during the data driven OMS approach as having recurring maintenance issues (shown in red).

**Feedback:**

Based on a discussion with Perry County maintenance staff, the following locations were identified as having recurring maintenance activities:

1. **KY 699** near the Leslie County Line (MP 2.0 – 4.0)
  - o Poor pavement – the road needs to be resurfaced
2. **KY 699** near the Leslie County Line (5.0 – 11.0)
  - o Poor pavement – the road needs to be resurfaced
3. **KY 3348** near Daisy (MP 1.0 – 3.0)
  - o Steel is drilled in this location yearly
4. **KY 7** near Viper (MP 4.0 – 12.0)
  - o This is the worst section in the county. There is currently a PIF for this location
5. **KY 1166** near Viper (1.0 – 4.0)
  - o Rock slides and breaks
6. **KY 1165** near Viper (MP 4.0 – 7.0)
  - o Constant rock slides
7. **KY 1095** near Vicco (MP 0.0 – 2.9)
  - o Flooding during heavy rainfall
8. **KY 1440** near Hazard (MP 0.0 – 3.0)
  - o Rock slides near driveways



9. **KY 2021** (MP 2.0 – 3.0)
  - Also identified by OMS approach
10. **KY 451** near Krypton (MP 12.0 – 20.0)
  - Constant rock slides and breaks
11. **KY 1833** near Buckhorn (MP 3.0 – 4.0)
  - Steel drilling is common on this section
12. **KY 2022** (MP 0.0 – 0.75)
  - Also identified by OMS approach
13. **KY 2022** near the Owsley County Line (MP 7.0 – 8.0)
  - Also identified by OMS approach
14. **KY 2446** near Dice (MP 2.0 – 3.0)
  - Also identified by OMS approach
15. **KY 267** near Dice (MP 7.0 – 12.0)
  - Steel has been drilled several times
16. **KY 476** near Robinson Forest (MP 19.0 – 22.0)
  - Constant rock slides and breaks
17. **KY 476** near the Knott County Line (MP 5.0 – 7.0)
  - Constant rock slides and breaks
18. **KY 3351** near the Knott County Line (MP 1.0 – 2.0)
  - Also identified by OMS approach
19. **KY 1087** near the Knott County Line (MP 0.0 – 2.9)
  - Constant rock slides and breaks

**Findings:**

**Figure 20** below shows the combined results of the OMS data review and input from the Perry County Maintenance staff. Nineteen locations were identified by the maintenance staff as having recurring maintenance issues (shown in blue). Of the fourteen locations identified by the data driven OMS approach, the maintenance staff agreed that six had recurring issues (shown in red). Five locations were identified by both the maintenance staff and the OMS approach (shown in purple).



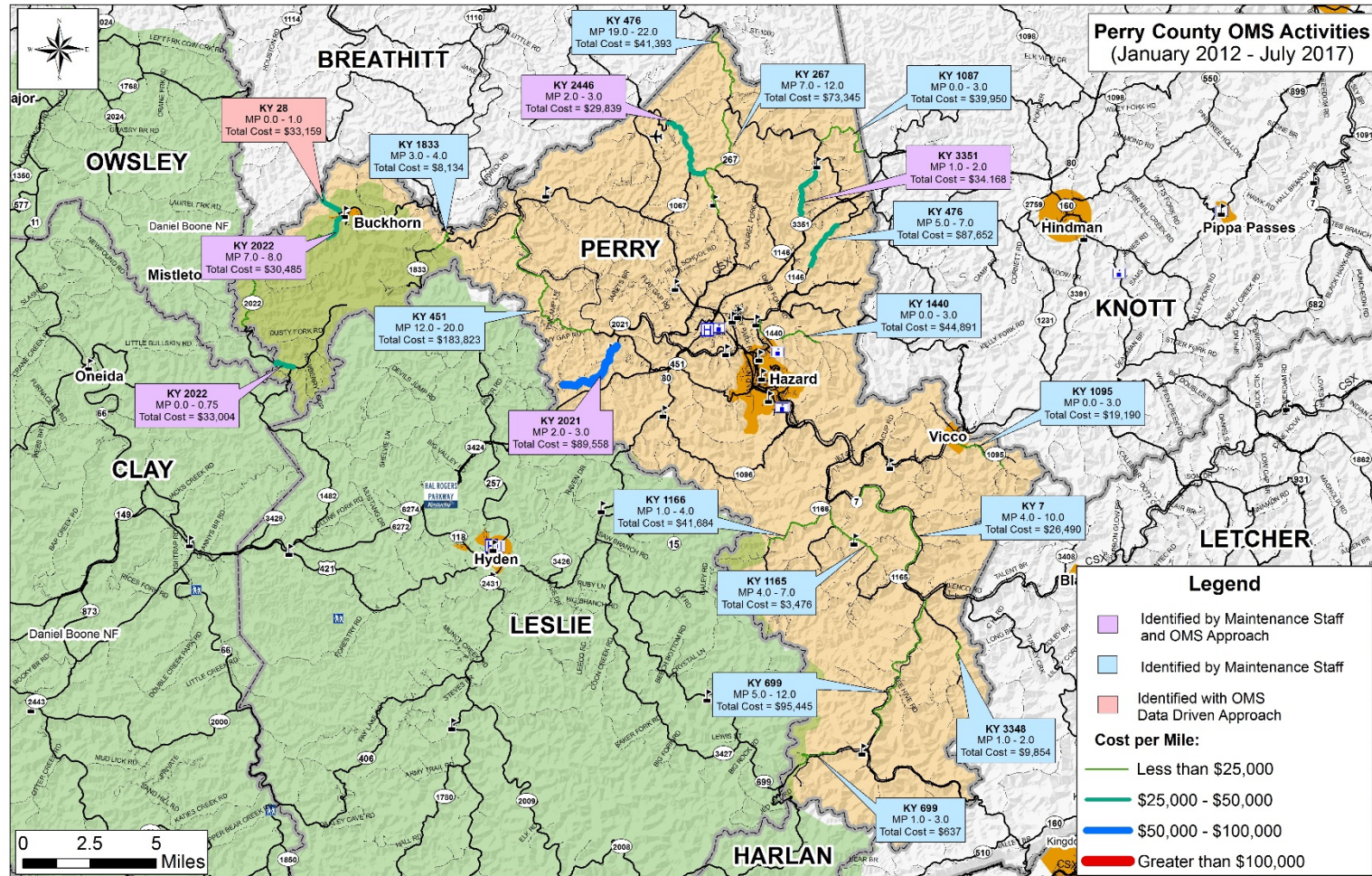


Figure 20: Perry County Recurring Maintenance Locations

**STANTEC CONSULTING SERVICES INC.**

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