



Pavement and Roadway Asset Management Project

Construction Management & Engineering

Find Your Florida

Project Purpose

The purpose of this project is to develop a pavement and roadway asset management program allowing the City to best utilize city funds to maintain our roadways.

Strategic Action Plan

- Objective 1.1: To enhance infrastructure in order to maintain quality neighborhoods and business districts

- Objective 5.2: Enhance safety measures throughout the community

Current Procedure

City maintains 1186.2 lane miles of roadway

- The City resurfaces 20 to 30 lane miles per year (2%)
- City utilizes resurfacing as the only maintenance option

Public Works staff performs annual roadway ratings

- Lead signal technician spends between 240 to 320 hours rating the roadways
- Public works performs a visual evaluation
- Priorities are based on available funds

Pavement Management Plan

- Use a professional service to create Pavement Condition Index (PCI) utilizing American Society for Testing & Materials (ASTM) standards
- Establish a PCI standard for residential, collector and arterial roadways
- Develop a long term capital plan for maintaining the roadways utilizing more than just resurfacing

Pavement Management Plan Benefits

- Better data collection will lead to utilizing other pavement maintenance techniques
- Creation of a GIS shape file that identifies all roadway rating
- Establishing standards for maintaining residential, collector and arterial roadways
- Establish long term costs for maintaining our roadways
- Develop a long range plan utilizing a variety of techniques such as:
 - Rejuvenation (approx. \$6,000 / lane mile)
 - Microsurfacing (Approx. \$25,000 / lane mile)
 - Resurfacing/Mill & Overlay (Approx \$55,000 / lane mile)
 - Roadway Reconstruction (Approx \$350K - \$500K / lane mile)

Consultant

- Sent a Request for Qualifications and received seven submittals
- Five firms were shortlisted and presented to a team of City Staff members
- The following criteria was utilized to score the presenting teams
 - Experience with Similar Projects
 - Project Understanding
 - Project Team
 - Schedule and Availability
 - Location
- The consultant selected was Transmap

CITY OF PALM COAST, FL

PAVEMENT AND ROADWAY

ASSET MANAGEMENT PROJECT



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Find Your Florida

FLORIDA PROJECT EXPERIENCE

- City of Palm Bay, FL
- City of Coral Springs, FL
- City of Pompano Beach, FL
- City of Boca Raton, FL
- City of Sarasota, FL
- City of Lakeland, FL
- City of Live Oak, FL
- City of Clearwater, FL
- City of Bartow, FL
- City of Bonita Springs, FL
- City of Cooper City, FL
- City of Delray Beach, FL
- City of Hollywood, FL
- Manatee County, FL
- Osceola County, FL
- Pasco County, FL
- Putnam County, FL
- Escambia County, FL
- The Villages, FL
- Town of Davie, FL

TRANSMAP SOLUTION

LADYBUG5
360° SPHERICAL CAMERA IMAGING SYSTEM



Velodyne® LiDAR

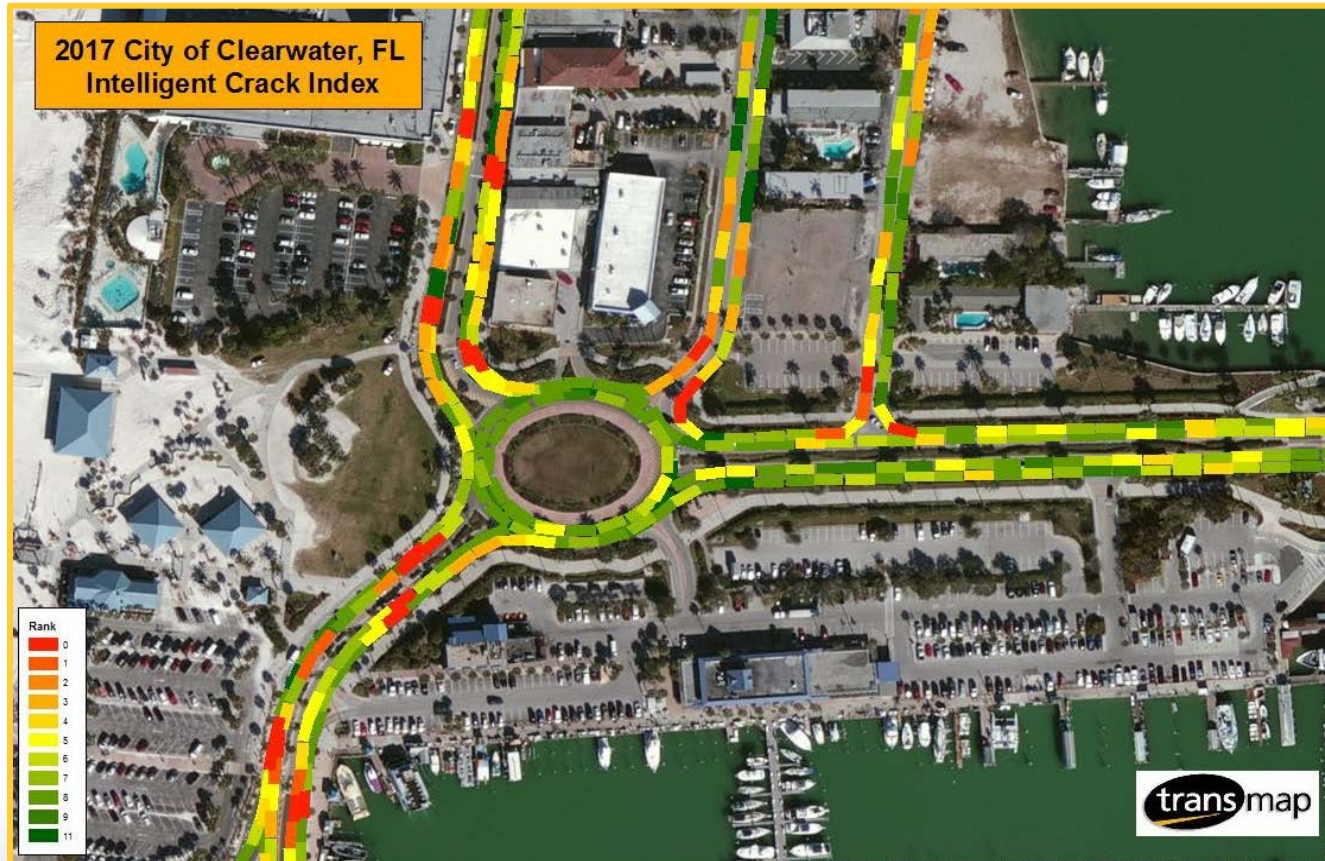


Quick turnaround:
PCI delivery in under
57 days



PHASE I: PAVEMENT CONDITION & MASTERPLAN

Crack Map 3D



- Instant crack data delivered as GIS file
- ASTM D6433 crack identification
- Pothole detection

ArcGIS ONLINE VIEWER

The screenshot displays the ArcGIS Online interface for a 'Pavement Viewer' application. The browser address bar shows the URL: transmap.maps.arcgis.com/apps/View/index.html?appid=5e512afc6b6643a6ab045d1a4200fdfe. The application title is 'Palm Bay, FL - Pavement Viewer'. A search bar contains the text 'Find address or place'. The map shows a network of roads with different colors representing pavement conditions. A data popup window is open over a road segment, displaying the following attributes:

| | |
|------------|-------|
| TRUE_AREA | 6,710 |
| AvgIRI | 2.27 |
| AvgRut | 4.33 |
| NUMOFLABS | 0.00 |
| SLABWIDTH | 0.00 |
| SLABLENGTH | 0.00 |
| PCI | 44 |

The legend on the right side of the map is titled 'Legend' and lists the following categories and color-coded ranges:

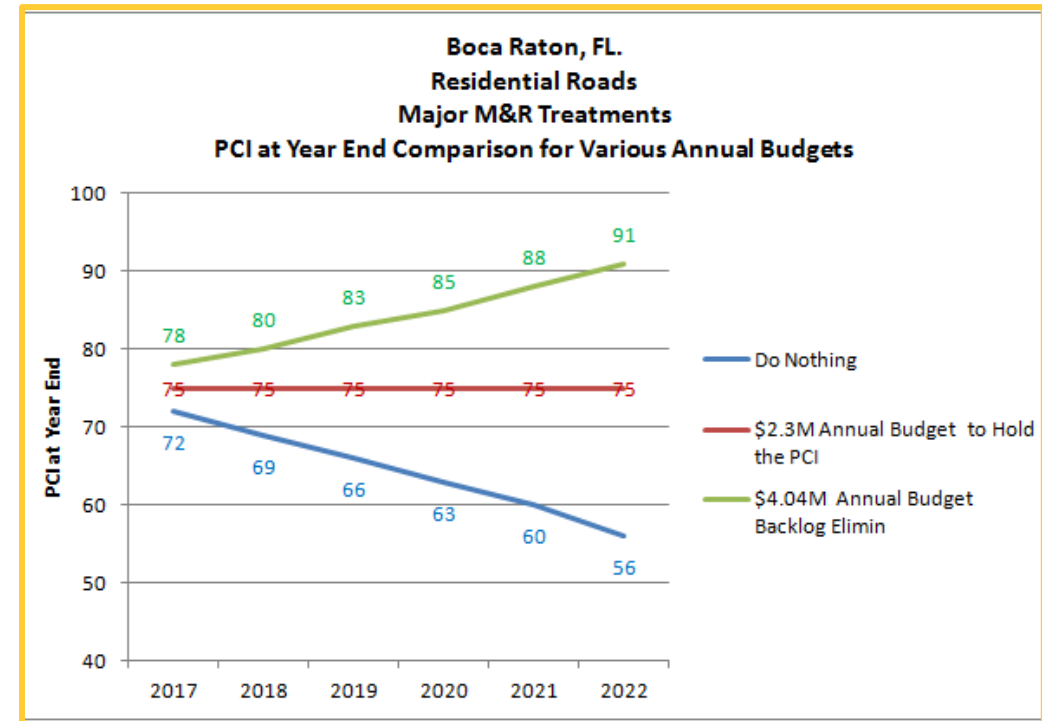
- Pavement Centerline**
- PCI**
- Good (86-100) - Green
- Satisfactory (71-85) - Light Green
- Fair (56-70) - Yellow
- Poor (41-55) - Orange
- Very Poor (26-40) - Red
- Serious (11-25) - Dark Red
- Failed (0-10) - Grey

An inset image in the bottom left corner shows a photograph of a road intersection with a roundabout, a yield sign, and trees in the background.



PAVEMENT PRESERVATION

| PCI Range | Work Type | Rehabilitation Options |
|-----------------------|----------------|--|
| 86-100 Good | Rejuvenation | Little or no maintenance E.g. Crack Seal, Reclimite, fog seal |
| 71-85 Satisfactory | Global | Routine Maintenance E.g. Seals such as slurry seal |
| 56-70 Fair | Critical | Non-structural overlay, cape seal |
| 41-55 Poor | Conventional | Structural overlay Overlay, Mill and overlay |
| 26-40 Very Poor | Conventional | Structural Overlay Overlay, Mill and overlay |
| 11-25 Serious | Reconstruction | Reconstruction, rebuild, full depth reclamation |
| 0-10 Failed | Reconstruction | Reconstruction, rebuild, full depth reclamation |

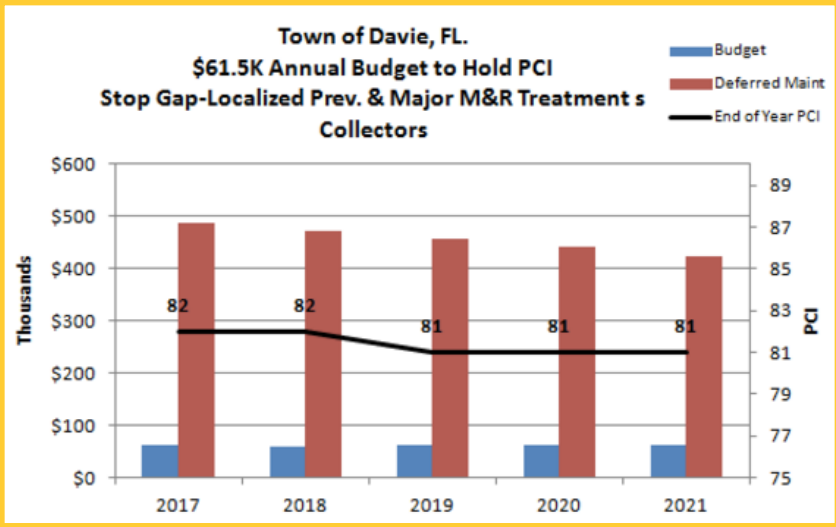
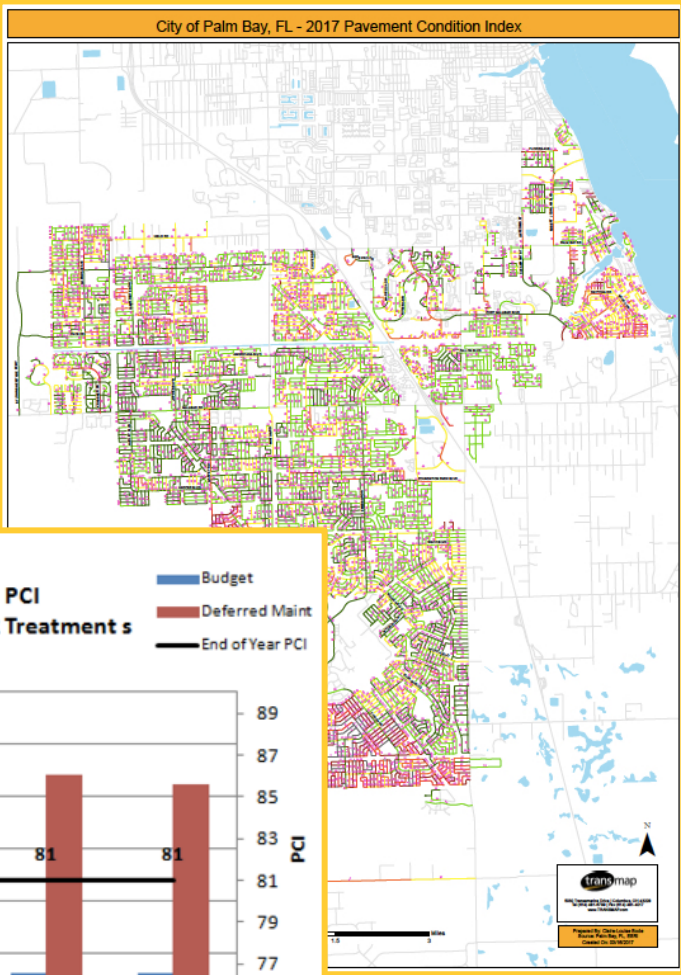
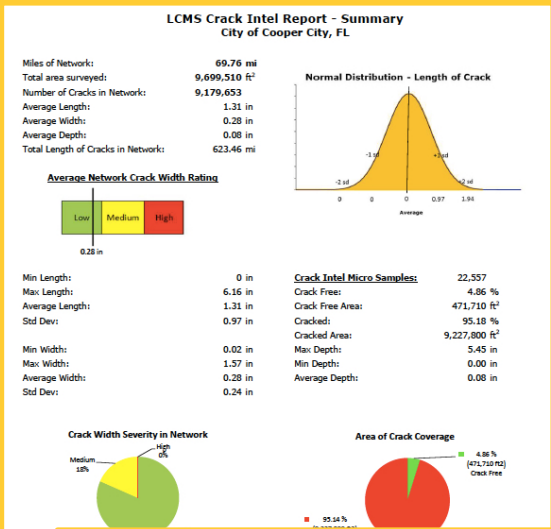


Pavement Preservation: Planned system of treating pavements to maximize their useful life as cost-effectively as possible.

BUDGET OPTIMIZATION



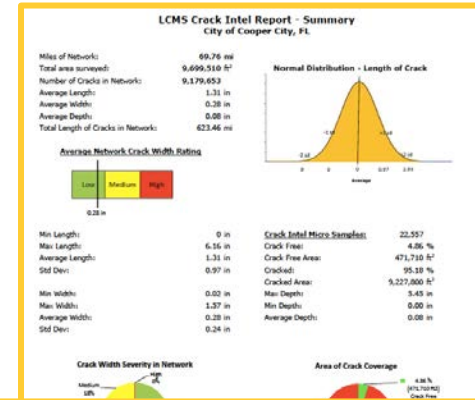
- Boot Camp on-site with City
- Define needs
- M&R Optimization (preventative maintenance)
- Maximize budgets
- District PCI analysis
- 5-10 year CIP plan



PHASE I DELIVERABLES



- Maps
 - PCI, IRI, RUT, cross slope
- Reports
 - 5-10 year Master Plan
 - Report book
- Image deliverables
 - Project page
 - Web-based viewer
 - hard drive
- GIS data
 - PCI centerline
 - Van image
 - LCMS polygons
- Crack intelligence report



Clearwater, FL - Project Page

Clearwater, FL - 2017 Project Page

[Boot Camp](#)
[Agenda](#)
[Sign In Sheet](#)
[Notes](#)

[Drivecode Review Map \(22X34\)](#)

Pavement Reporting - Table of Contents

Section A - Branch Condition Report ([PDF](#))([XLS](#))
Section B - Section Condition Report ([PDF](#))([XLS](#))
Section C - Distress Report ([PDF](#))([XLS](#))
Section D - Maps
 Pavement Condition Index (PCI) Maps ([22X34](#))
 Pavement Rut Map ([22X34](#))
 Pavement Cross Slope Map ([22x34](#))
 Pavement Cross Slope Map ([11x17](#))
 Pavement Pothole Maps ([22x34](#))
 Pavement Potholes ([11x17](#))
 LCMS Crack Intel Report - Summary Draft ([Infograph](#)) ([Metadata](#))
 Curbs Asset Maps ([22X34](#))
 Striping Asset Maps ([22X34](#))
 Markings Asset Maps ([22X34](#))

ClearwaterPavementCenterline

| | |
|------------|-------|
| FID | 2,155 |
| UNIQUEID | 2,454 |
| RW | 60.00 |
| RESURF | 2010 |
| FUNC_CLASS | |

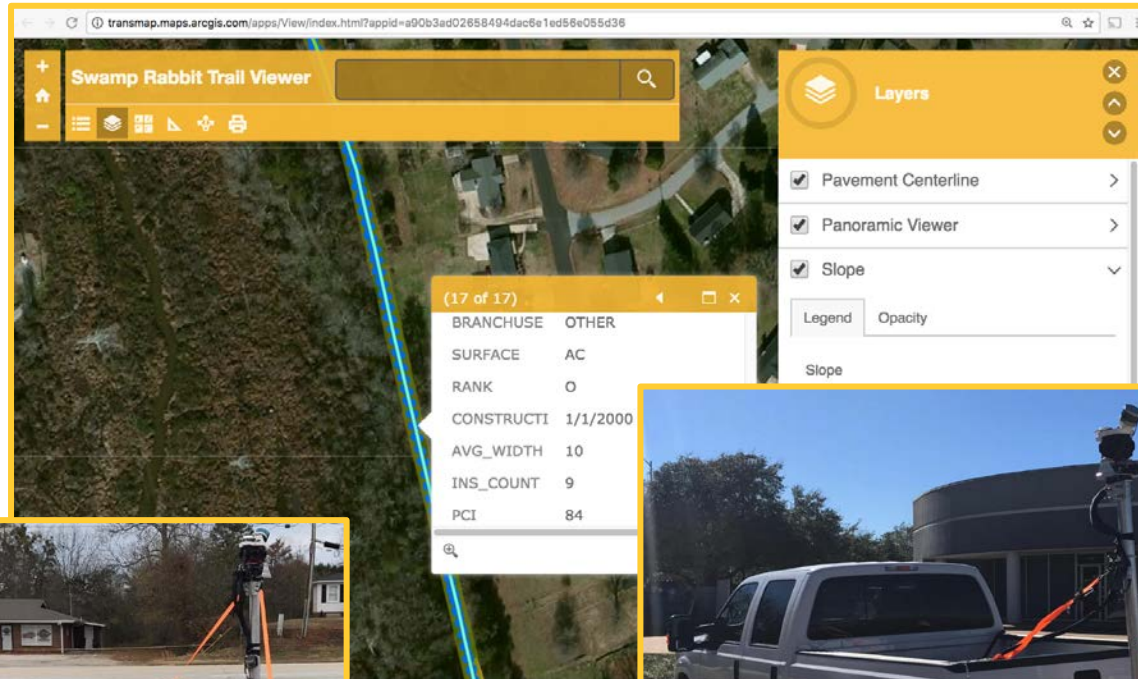
Pavement Centerline PCI

- Good (86-100)
- Satisfactory (71-85)
- Fair (56-70)
- Poor (41-55)
- Very Poor (26-40)
- Serious (11-25)
- Failed (0-10)



PHASE II: PATHWAY / ROADWAY ASSETS

System 6 with Ladybug5 and LiDAR



PHASE II DELIVERABLES

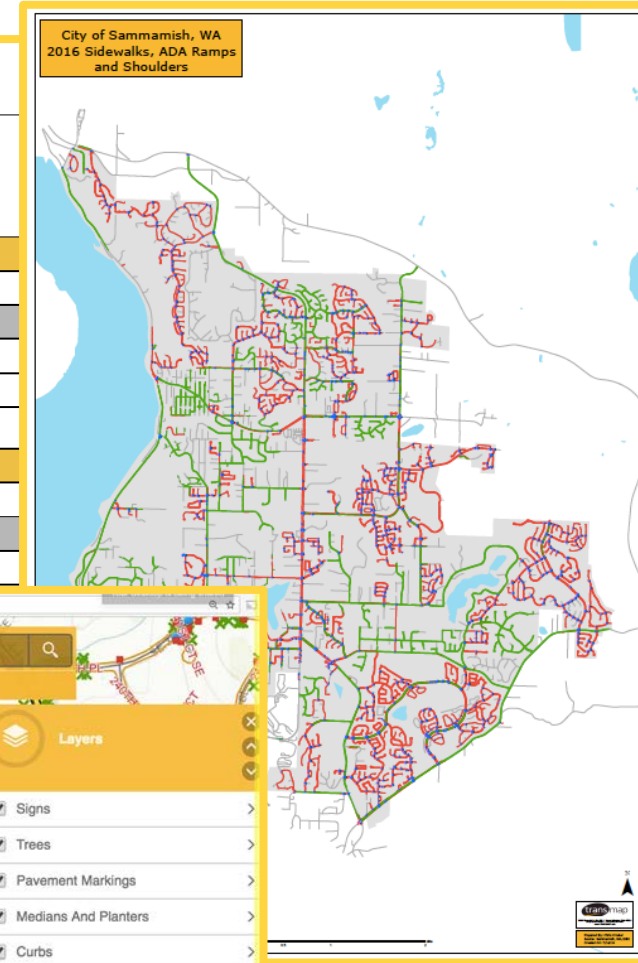
- Roadway assets
- Pathway assets
- Maps
- Reports
 - Statistics
- Image deliverables
 - Web-based viewer
 - Hard drive
 - Project page
- Compliance
- GIS data

transmap

Benches
Benches located on roads driven by Transmap. Below is a breakdown of the Bench statistics.

| Benches | | |
|---------|-------|---------|
| Type | Count | % |
| All | 111 | 100% |
| Metal | 19 | 17.117% |
| Wood | 102 | 91.892% |

| ADA Ramps | | |
|-----------|-------|---------|
| Covered | Count | % |
| All | 111 | 100% |
| No | 105 | 94.595% |



transmap City of Sammamish, WA - Asset Data Viewer

The screenshot shows a web-based viewer interface with a map, a search bar, and a layers panel. A pop-up window displays details for a specific asset:

| SammamishSignsSigns | |
|---------------------|-------------|
| FID | 758 |
| MUTCD | D3-1 |
| PostType | WOODEN POST |
| FacingDire | E |
| Condition | GOOD |

The layers panel includes the following items:

- Signs
- Trees
- Pavement Markings
- Medians And Planters
- Curbs
- Retaining Walls
- Pavement Striping
- Ditches
- Signal Cabinets

Proposed Plan and Costs

- Budget FY 2017 - \$150,000
 - Phase 1 - Pavement Condition Survey - \$ 77,399.55
 - Budget FY 2018 - \$150,000
 - Phase 1 - Master Plan Creation - \$ 87,180.46
 - Phase 2 - Striping Condition Inventory and Survey - \$12,178.00
 - Phase 2 - Sidewalk/Pathway Inventory and Survey - \$33,711.57
- Project Total \$210,469.58**

COUNCIL ACTION

- Approve Work Order in the Amount of \$210,469.58 with Transmap, Inc. for the development of a new pavement and roadway asset management program



Questions?

