VDOT

Virginia Department of Transportation

iVision Pavement Condition Monitoring & Analysis Tool

May 22, 2014
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Agenda

- **Background**
- **Scope of Pavement Data Collected**
  - **Data Collection Vehicle**
  - **Pavement Data Collection Results**
  - **Pavement Data Methodology**
- **Pavement Management System**
  - **iVision Pavement Data Collection Tool Demonstration**

Background

- **CTB Subcommittee**
  - **Convened in 2011**
  - **Consisted of all at large CTB Members**
  - **Recommendations and Consensus**
  - **http://www.virginiadot.org/business/resources/local_assistance/Microsoft_PowerPoint_-_CTBSub_Jennifer.pdf**
- **Local Government Workgroup**
  - **Reconvened Workgroup**
  - **Consisted of 13 different localities, VDOT, the VA Municipal League, and the VA First Cities Coalition**
  - **Workgroup Recommendations**
- **July 13, 2012 Letter to Urban Municipalities**
  - **http://www.virginiadot.org/business/resources/local_assistance/Pavement_Data_on_Local_System.pdf**

Scope of Pavement Data Collected

- **Data collection was contracted out to Fugro-Roadware**
- **Automated data collection using digital images and automated crack detection methodology since 2006**
- **Total collection for the Urban Arterial System Collection:**
  - **Includes Principal and Minor Arterial Routes**
  - **Collected approx. 2,795 directional miles**
  - **Cost: $250,000**
  - **Pavement data collection was completed in February 2013**

Data Collection Vehicle
Automatic Road Analyzer (ARAN)

Photolog

- Single view
- Panoramic view
- 1300 x 1030 pixel
- 1920 x 1080 (HDTV)
- Direct-to-digital
- Custom angles

Pavement

- Image recognition software
- Strobe-lit pavement video
- Roughness
- Texture
- Rutting
- Surface Distress
- Ground Penetrating Radar

Geometry & Spatial

- Inertial measurement unit
- HPMS curve type
- Long. Grade
- Cross slope
- Centerline mapping
- Spatial referencing for GIS integration

Assets

- Inventory from imagery
- Location determined
- Offset measured
- Height and width measured
- Sign code recorded
- Condition assessment

Pavement Data Collection Results

- **Pavement Delivery Method Options**
  - **Excel Spreadsheet (Data included IRI and CCI Indices)**
    - (http://www.virginiadot.org/VDOT/Business/asset_upload_file657_47098.xlsx)
  - **Complete Distress and Index Data Spreadsheets**
    - **Sept 17, 2013 Webinar** (https://intercall.webex.com/intercall/ldr.php?RCID=b959969bb21d39459acf8fa72051f106)
  - **iVision Pavement Data Collection Tool**
    - **May 8, 2014 Webinar**

      (link will be pasted shortly to http://www.virginiadot.org/business/local-assistance-programs.asp)

Data Summarization: Pavement Condition Indices

- **Flexible Pavement**
  - **Load Related Distress Rating (LDR)**
    - Alligator (Fatigue) Cracking, Wheel Path Patching, Rutting
  - **Non-load Related Distress Rating (NDR)**
    - Longitudinal and Transverse Cracking, Non-Wheel Path Patching, Bleeding

  The lower of the two index values is the Critical Condition Index (CCI)

- **Pavement Condition Category based on CCI**
  - **Excellent (≥ 90)**
  - **Good (Between 70 and 89)**
  - **Fair (Between 60 and 69)**
  - **Poor (Between 50 and 59)**
  - **Very Poor (≤ 49)**

  Poor and Very Poor pavements are termed as "deficient"

Pavement Management System (PMS)

- **A tool to store, analyze, summarize and report data**

- **Serves as a repository of inventory, history and condition data**

- **Used to identify M&R needs**

- **Used to develop budget requirements**

- **Used to answer where, when and what treatments are needed**

- **Used to export files for displaying maps in GIS**

Demonstration

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