

DRAFT RESULTS: DATA GATHERING AND ASSESSMENT OF REGIONAL STORMWATER GIS DATA (PHASE 1)

WRWC Agenda Item 9

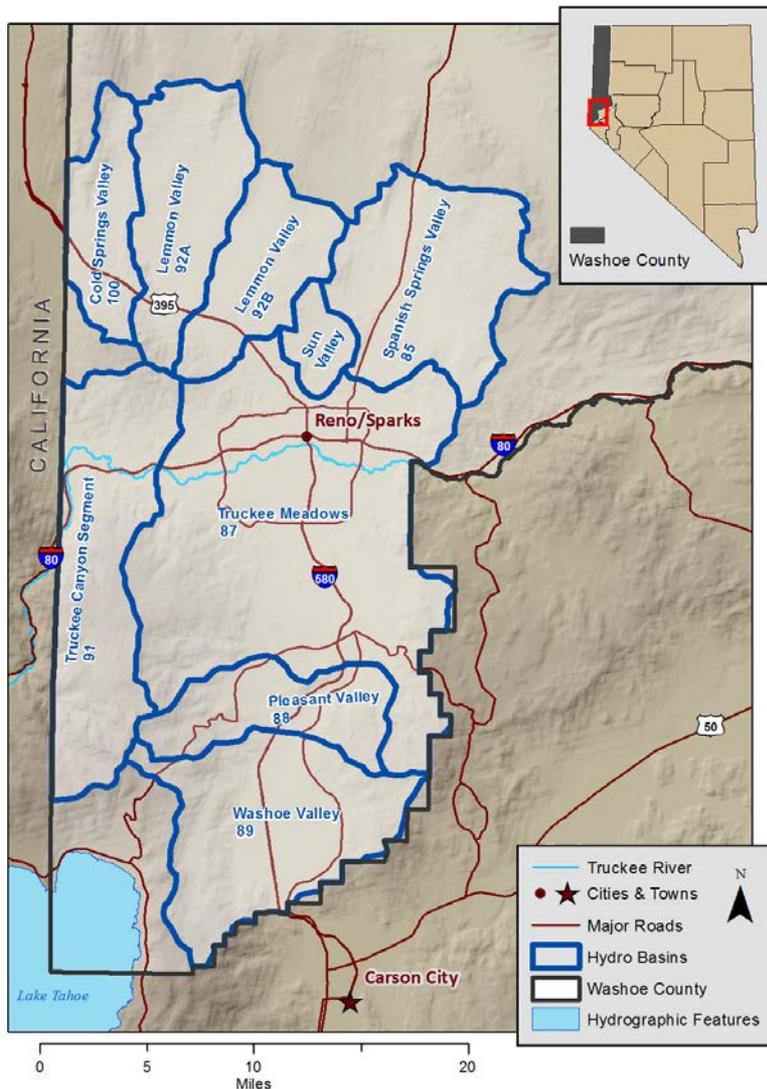
Jeremy M. Smith, TMRPA
Jim Smitherman, WRWC

1/17/2018

Initial Objectives

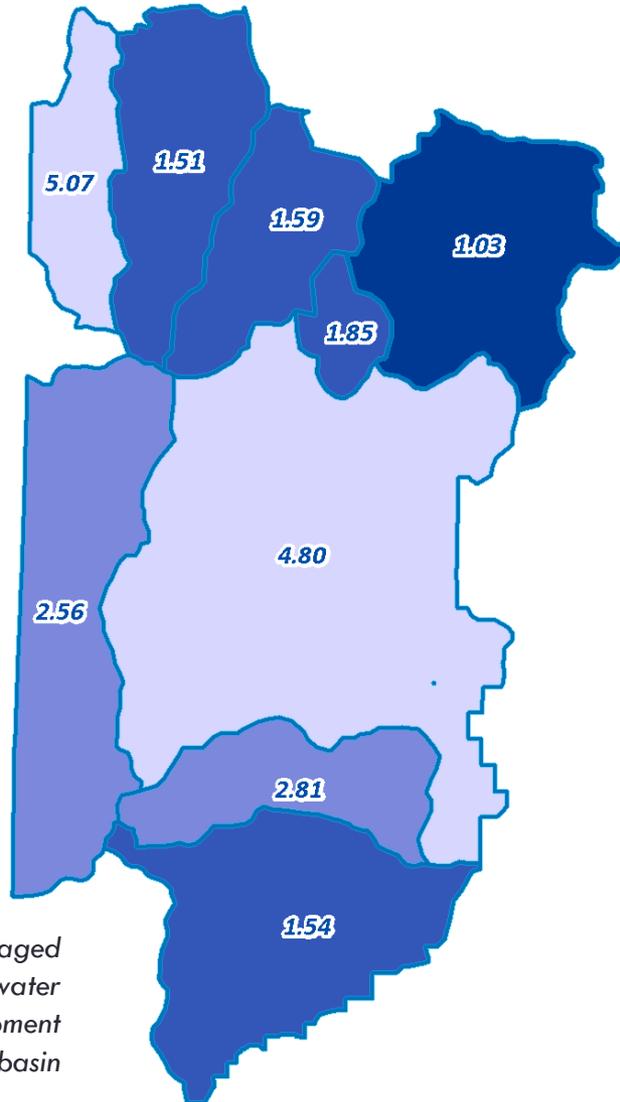
- Request by the Western Regional Water Commission to investigate, compile and complete a GIS network describing stormwater conveyance in the Truckee Meadows.
- Initial scope contemplated 3 phases:
 - Data gathering and assessment
 - GIS data editing and data completion of stormwater conveyance network
 - Creation of ancillary data layers (e.g. impervious surface, hillside drainage networks)
- Approval of funds for Phase 1: Data Gathering and Assessment
 - Draft results of Phase 1 constitute the remainder of today's presentation

Study Area



- Evaluated data availability by hydro basin
- Focus on Washoe County developed metro area
 - TMSA
 - Washoe Valley
 - Adjacent northern valleys
- Includes areas outside the Truckee River drainage
 - (e.g. North Valleys)

Results Overview



Values indicate averaged ratios of stormwater features to development features by hydro basin

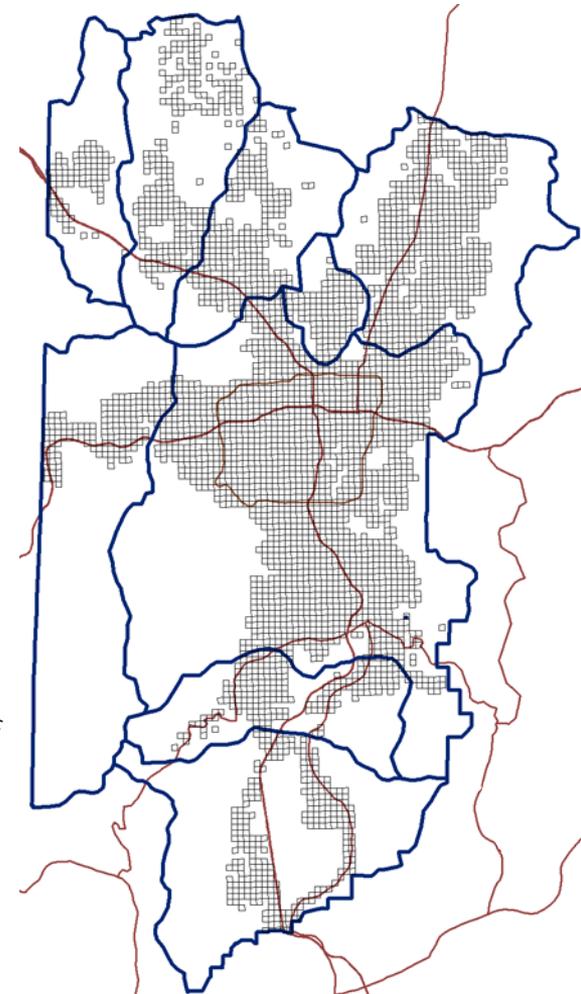
Hydro basins ranked

(1 = most complete)

1. Spanish Springs Valley
2. Lemmon Valley (west)
3. Lemmon Valley (east)
4. Washoe Valley
5. Sun Valley
6. Truckee Canyon (west)
7. Pleasant Valley
8. Truckee Meadows
9. Cold Springs Valley

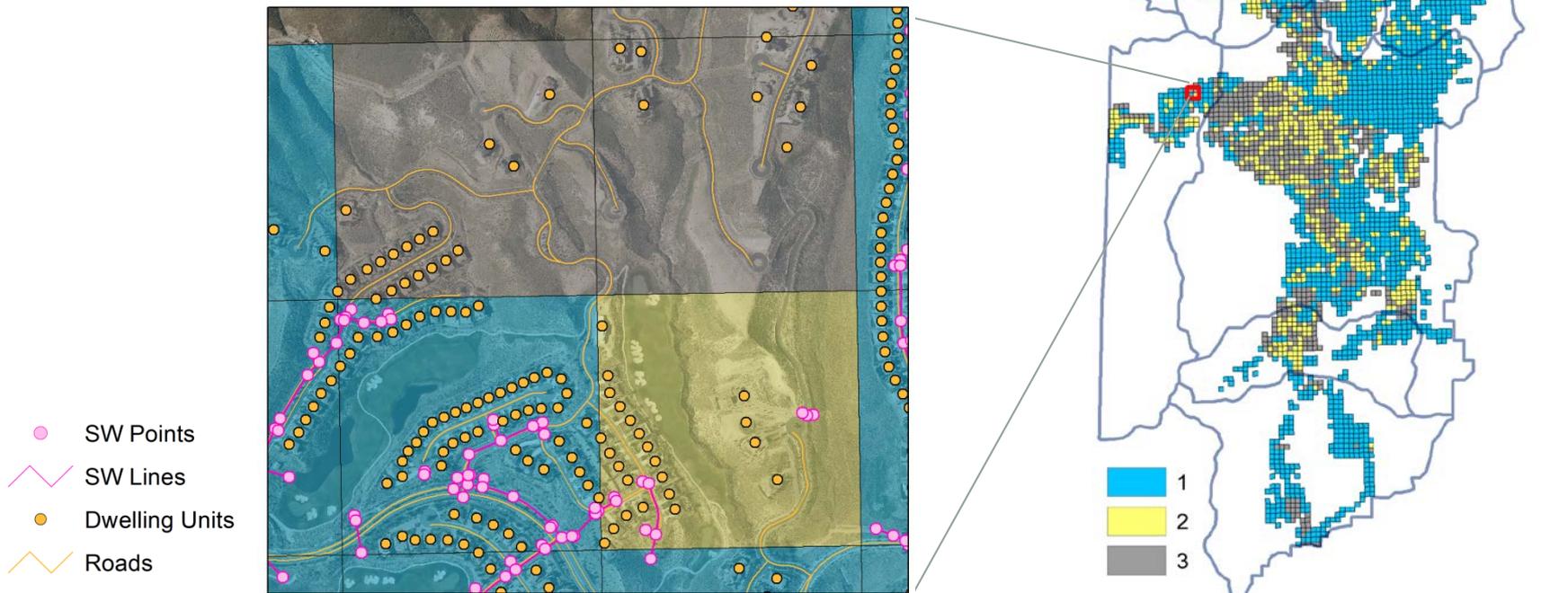
Analysis Approach

- Acquire relevant and available stormwater GIS data
- Compare coverage of stormwater data to occurrence of development data in each hydro basin
 - **Assumption: there is a relationship between the occurrence of development and the need for stormwater conveyance features**
- Created a quarter-mile analysis grid to divide up the region into equal-sized analysis bins
 - Total of 3,663 grid squares cover developed areas within the study area
- To define developed areas we used a combination of three data sources:
 - Dwelling units and/or business point locations (*WC Assessor and Infogroup*)
 - Road length (*WC GIS*)
 - Building square footage (*WC Assessor*)



Visual Assessment

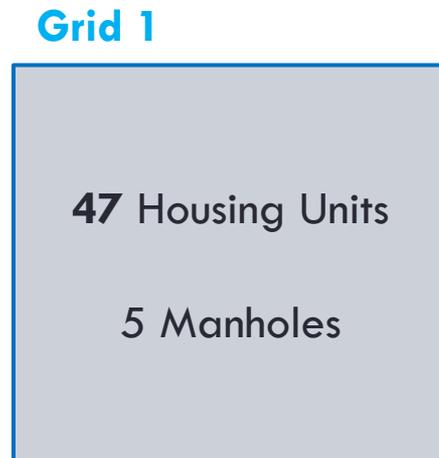
- Initial categorization of each square through a visual assessment using development data, stormwater data and aerial imagery
- Three categories:
 - (1) Has SW data, appears sufficient
 - (2) Has SW data, appears insufficient
 - (3) Does not have SW data, appears insufficient



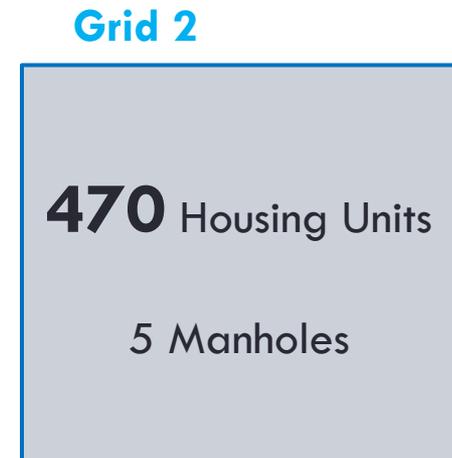
Quantitative Assessment

- Calculation of ratios that compare the occurrence of GIS features describing development in a given grid square to the occurrence of stormwater GIS features in that same grid square

- Example:



$$47 / 5 = \mathbf{9.4} \text{ ratio value}$$



$$470 / 5 = \mathbf{94} \text{ ratio value}$$

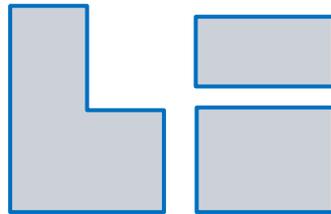


Relationships Examined

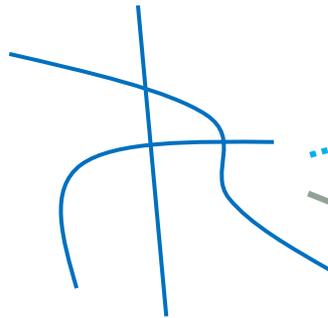
Development Features

Stormwater Features

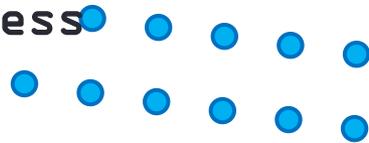
Building Square Footage



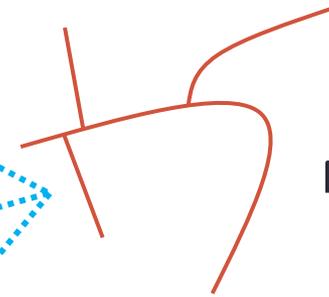
Roads



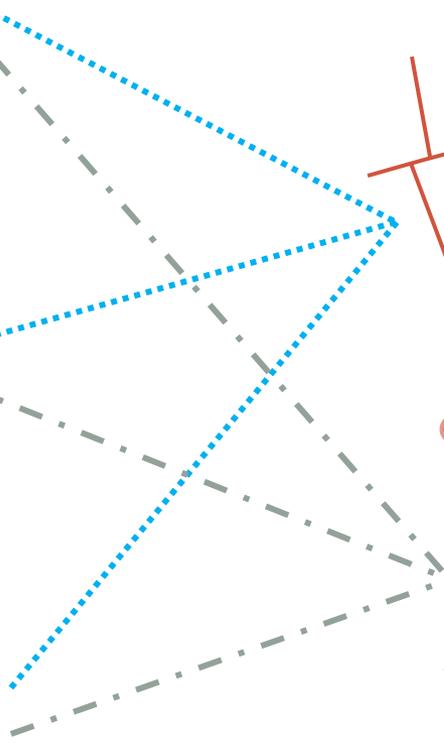
Housing & Business Points



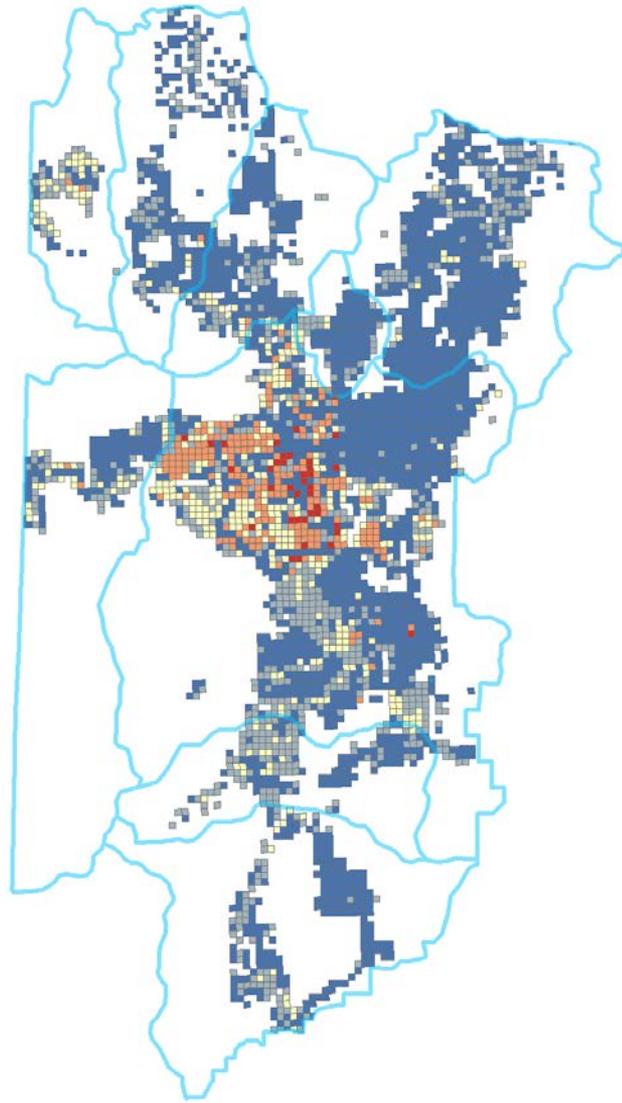
Stormwater Line Features



Stormwater Point Features

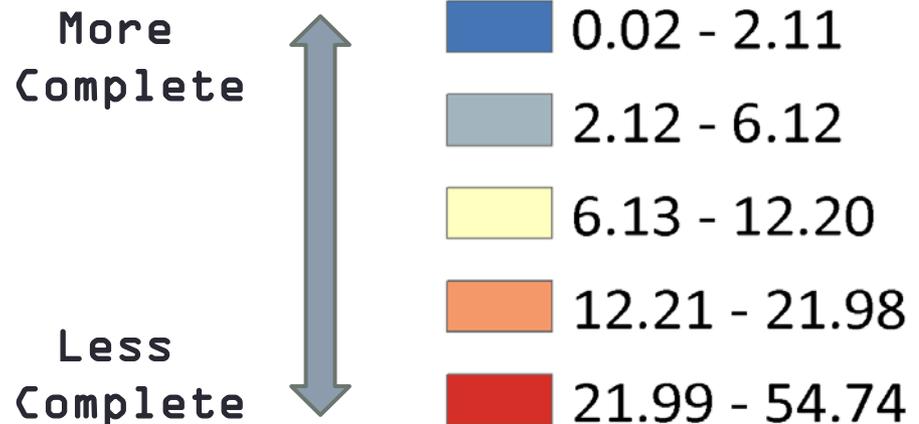


Average Standardized Ratios

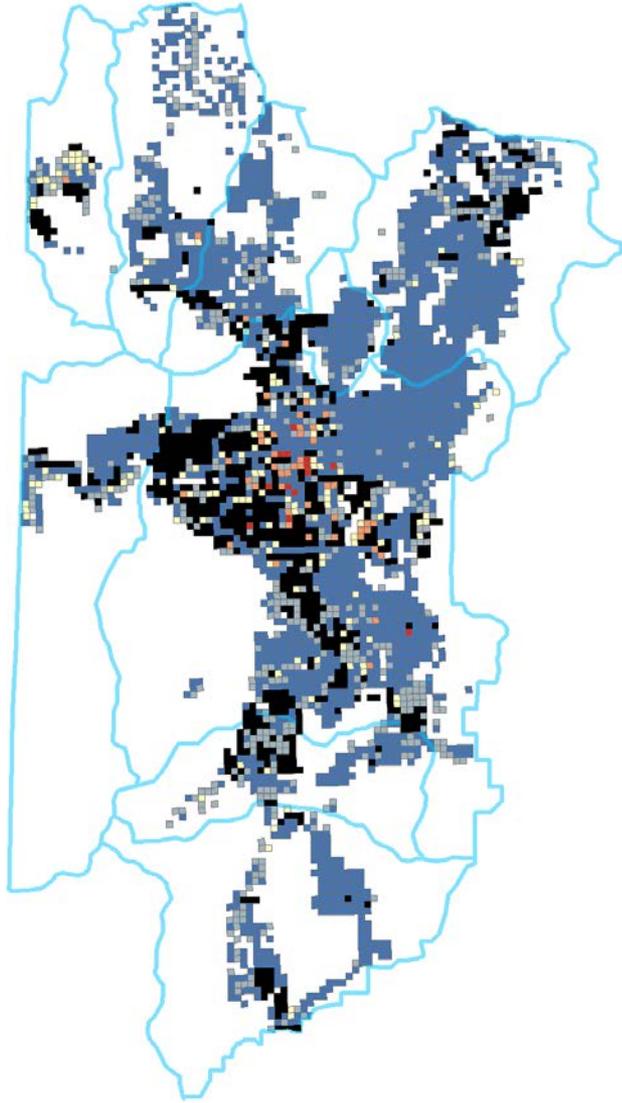


The results for each ratio calculation combination were standardized by their average value to allow for comparison across ratio combinations

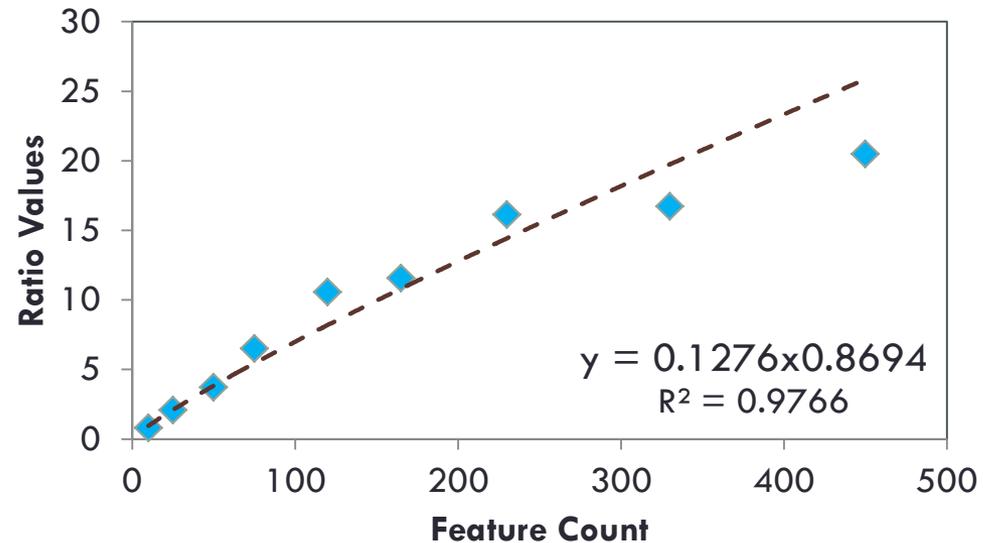
Average Standardized Ratio Values



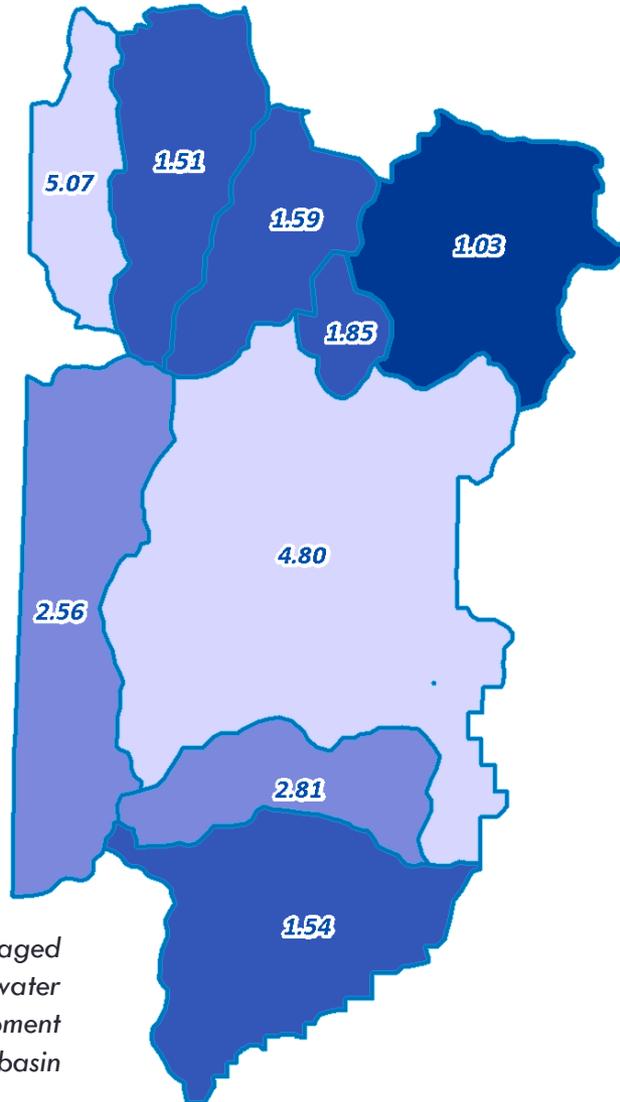
Estimating Ratios In Data Gaps



A set of proxy ratios based on existing development data were estimated in ca. 750 grid cells where no stormwater data were present



Results Overview: Reprise



Values indicate averaged ratios of stormwater features to development features by hydro basin

Hydro basins ranked

(1 = most complete)

1. Spanish Springs Valley
2. Lemmon Valley (west)
3. Lemmon Valley (east)
4. Washoe Valley
5. Sun Valley
6. Truckee Canyon (west)
7. Pleasant Valley
8. Truckee Meadows
9. Cold Springs Valley

Other SW Data Considerations

- The following data items have also been assessed and will be further detailed in the final report document
 - Attribute fields
 - Areal features (e.g. retention basins)
 - Topological connectivity
 - Hydrographic features (e.g. streams)
 - Irrigation ditches

Initial Conclusions

- Our region is far along toward compiling a complete “schematic view” of stormwater conveyance infrastructure
- **Around 60% of our developed areas appear to have adequate GIS data coverage of stormwater conveyance features**
- Some data gaps appear to exist with around 20% of developed areas exhibiting no stormwater data and another 20% or so that likely need additional features mapped
- Coverage is most complete in several of the North Valleys and in Washoe Valley. Gaps in coverage exist in Cold Springs and in the Truckee Meadows proper

Next Steps

- Centralized storage of existing GIS data describing stormwater conveyance in TMRPA regional data warehouse (**in process**)
 - Data will be available to all participating agencies, relevant stakeholders and interested parties via a dedicated **webpage**
 - **Online map** viewer and access to **final report**
 - Schedule of periodic updates to **track progress** from this initial benchmark
- Access to the assessment data will undoubtedly allow interested parties to judge where we are missing data that may actually be available!

Next Steps

- Continued collaboration and participation in several related and ongoing initiatives
 - One Truckee River – 2018 Action Plan: Stormwater, Vegetation and Watershed Management Group
 - Regional Watershed Management Plan Update (City of Reno and Stantec)
 - Source Water Protection Program (NDEP and RCI)

- Convene a meeting with public works staff to examine this research and help craft a realistic proposal to complete the schematic-level data coverage (i.e. Phase 2)
 - TMRPA is engaged in a Regional Plan Update and has resource constraints
 - Public works staff have the experience to accurately estimate time and cost to complete and correctly capture data in the field

An aerial photograph of a valley with mountains in the background. The foreground shows a winding river, agricultural fields, and some buildings. The word "Questions?" is overlaid in the center in a stylized, orange-outlined font.

Questions?