Henry Miller Reclamation
District Overview

- Located mainly within the County of Merced
- Manages the irrigation water delivery and drainage system of San Luis Canal Company
- SLCC receives 163,600 acre-feet of water per year for agricultural irrigation
- A major part of the Company’s business process is to maintain accurate land records.
GIS at HMRD

- Needs Assessment provided the District with a roadmap
- STORM Water Resource Management Software for water accounting, land management, customer information management and turnout reading
- ESRI ArcView for creation, viewing and printing of district facility mapping
- Stock Maps are property maps, broken into public land survey system (PLSS) and are the only records of the parcel mapping for the Company.
GIS Project Drivers

- Need of an inventory of SLCC stocks and assets in GIS; with a capability to integrate with disparate datasets and enterprise systems (STORM, etc) through GIS
- Need of greater efficiency for cost savings
- Need of better decision making and improved communication
- Need of better geographic information recordkeeping and managing documents geographically
Project Overview

- Designing an all encompassing first-of-its-kind data model and identifying key attributes.
- Gathering Sources from HMRD and from Merced County
- Stock map Conversion tasks.
- Irrigation Infrastructure Conversion tasks.
Designing the Irrigation Data Model

- DCSE looked through best practices – as there was no standard ESRI model
- DCSE reviewed the business process, practices, existing/planned datasets and systems; and needs of the different departments/personnel at HMRD
- DCSE sent out the data model to various irrigation districts through its quarterly newsletter to gather comments & reviews
- DCSE incorporated the views from others into a final data model
Gathering Sources

- DDCSE identified sources that would provide all the data model attributes, including the shapefiles from HMRD
- DCSE reviewed the existing SLCC stock maps
- DCSE also received data from Merced County
- DCSE also received aerial imagery and parcel data.
- The team scanned and inventoried sources and kept them link-ready.
The team used the Township-Section-Range stock maps and collected the bearings and distances from the recorded land survey data.

- The team checked for polygon closure and adjusted errors during such closures.

- DCSE used multiple rounds of QA/QC to enforce referential integrity, spatial accuracy and openness to future data/system enhancements.

- DCSE’s Quality Assurance approach helped the team catch errors as soon as they were committed.
Irrigation Infrastructure

Conversion tasks

- DCSE migrated the basemap data into ESRI ArcGIS
- The team then converted the infrastructure data from the existing shapefiles and aerial imagery
- The team also checked the network connectivity to ensure hydraulic soundness
- The final atlas that came out of the GIS was made field user ready.
Anomaly handling

- DCSE used PMI’s methodology to manage scope, schedule, budget and issues.
- Regular meetings enabled streamlining all tasks.
- Separate phases kept the project under constant control and monitoring.
● HMRD has since then been using GIS for a lot of analyses and field work.

● GIS makes visualizing the system and infrastructure conditions easier, thus helping GIS build a business case against capital improvements.

● HMRD is also planning to use GIS for various analyses, which were not possible before GIS.
What Next for HMRD

- STORM and GIS integration
- Surfer groundwater level integration with GIS
- Electronic Document Management System
- Report generation
- Others…
Questions?

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