

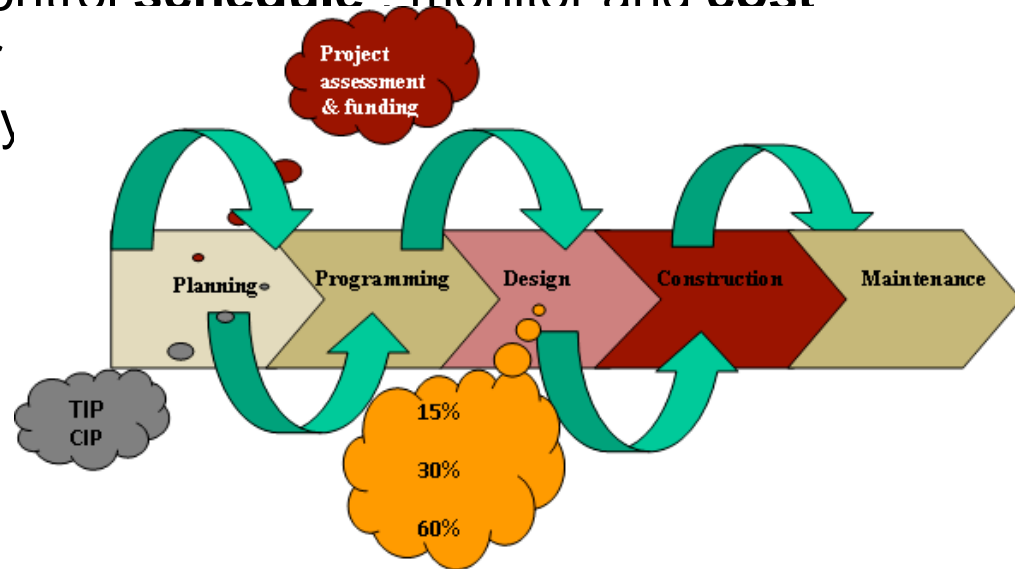
Transportation Project Monitoring Process: City of Mesa, Arizona Experience

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TASK

- In year 2005 the scope of on-going and future projects was reviewed
 - Implement process to improve monitoring capabilities using existing staff
 - Help manage all transportation capital improvement projects
 - monitor and control **schedule** : monitor and **cost deviations** for based on the ty



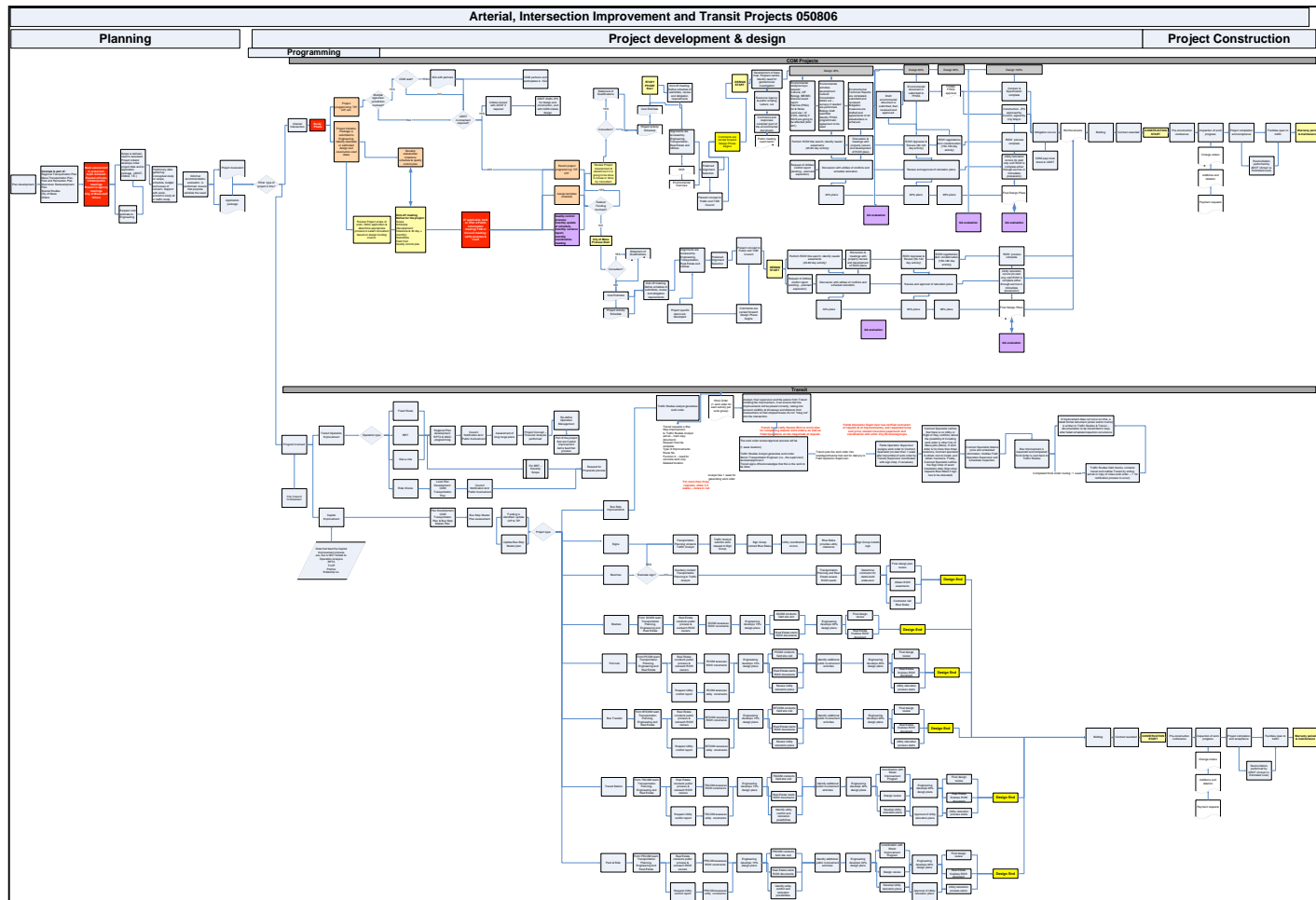
FINAL PRODUCT

- Application that tracks projects from inception to completion
- And includes all information necessary to satisfy the requirements of all program and project stakeholders.
- The scope of the application:
 - from monthly project to multi-year program analysis
 - including funding breakdown and estimated spending.
 - captures periodic status reports to better monitor project activities
 - on time and
 - within the budget parameters.

APPLICATION REQUIREMENTS

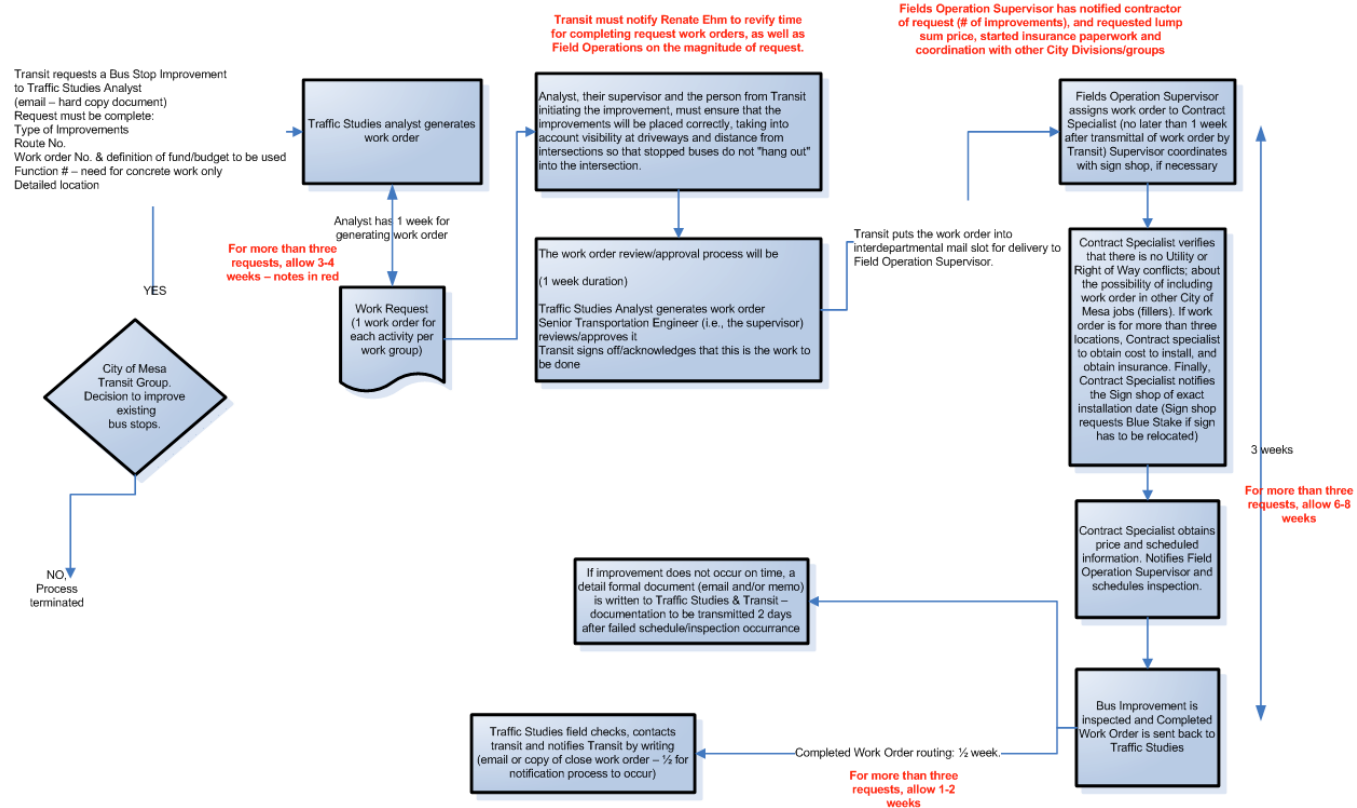
- Before development :
 - understand the business processes and constraints within.
 - processes that could be improved, were improved prior to automating those
 - flowcharts
 - development of program template.
- identify and understand the reporting needs
 - flowcharting the entire project process
 - identifying the various stages of generating these
 - identifying the audience for those reports.
 - **Table 1 – Stakeholders, Table 2 – Milestones**

Interdepartmental Business Processes (Project development – Engineering)



Transit Business Processes

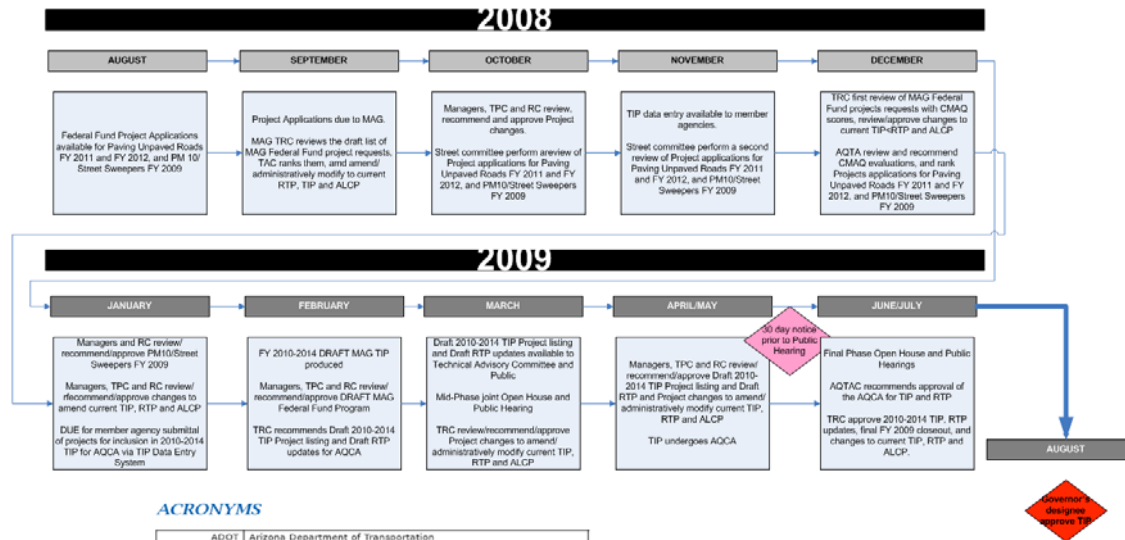
Bus Stop Improvement Flowchart Revision 3.0 (01/16/07)



Interagency Business Processes (Programming – MAG FY 2009)

2010-2014 Transportation Improvement Program – FY 2009. Mesa's coordination schedule with MAG

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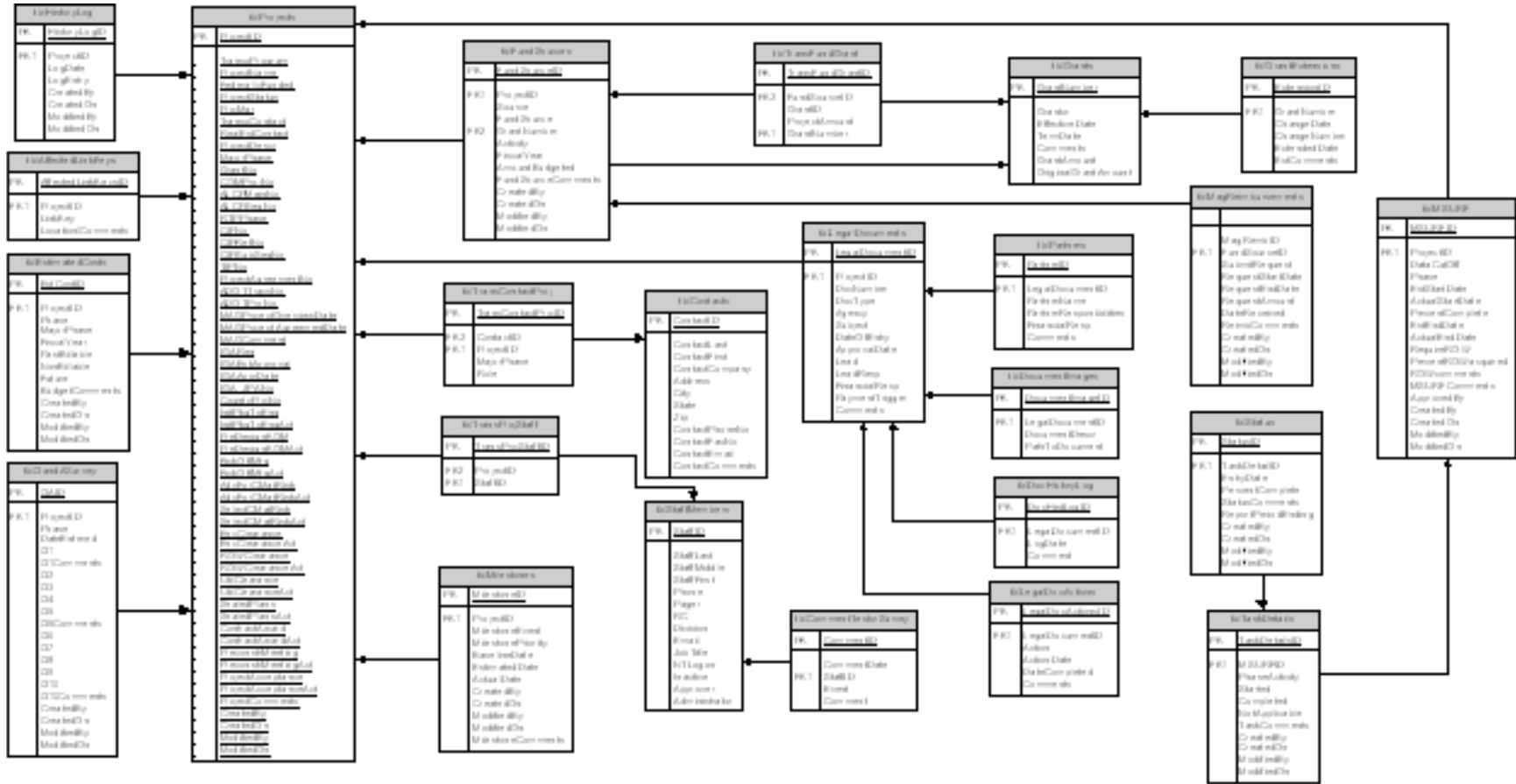
ACRONYMS

| | |
|------------|---|
| ADOT | Arizona Department of Transportation |
| ALCP | Arterial Life Cycle Program |
| AQCA | Air Quality Conformity Analysis |
| AQTAC | Air Quality Technical Advisory Committee |
| CMAQ | Congestion Mitigation and Air Quality |
| CTOC | Citizens Transportation Oversight Committee |
| EPA | Environmental Protection Agency |
| FFY | Federal Fiscal Year |
| FHWA | Federal Highway Administration |
| FTA | Federal Transit Administration |
| FY | Fiscal Year |
| HOV | High Occupancy Vehicle |
| HURF | Highway User Revenue Funds |
| ITS | Intelligent Transportation Systems |
| MAG | Maricopa Association of Governments |
| MAG-STP | MAG Surface Transportation Program |
| OA | Obligation Authority |
| PTF | Public Transit Funds |
| RARF | Regional Area Road Funds |
| RC | Regional Council |
| RPTA | Regional Public Transportation Authority |
| RTP | Regional Transportation Plan |
| RTPFP | Regional Transportation Plan Freeway Program |
| SAFETEA-LU | Safe, Accountable, Flexible, and Efficient Transportation Equity Act—A Legacy for Users |
| STAN | Statewide Transportation Acceleration Needs |
| STIP | State Transportation Improvement Program |
| STP-HES | Surface Transportation Program—Hazard Elimination and Safety |
| STP-RR | Surface Transportation Program—Rail Road Crossing |
| STP-TEA | Surface Transportation Program—Transportation Enhancements |
| TAC | Technical Advisory Committee |
| TCM | Transportation Control Measures |
| TERC | Transportation Enhancement Review Committee |
| TIP | Transportation Improvement Program |
| TLCF | Transit Life Cycle Program |
| TPC | Transportation Policy Committee |
| TRC | Transportation Review Committee |

DEVELOPMENT OF THE APPLICATION

- Due to timeframe and budget constraints:
 - Go with a Microsoft Access application.
 - Provides a relational database management system with an application development system
 - excellent platform for rapid application development.
- Steps:
 - define all the fields and the correct data types for capturing all the data
 - develop the required reports
 - group the fields into tables and normalize the data tables to the 3rd normal form (industry standard)

RELATIONSHIPS



TEAM: The Transportation Department contact & developer

- develop the user interface and reports
 - avoided waiting for testing and approval of each screen
 - side benefit (for Transportation contact):
 - in-depth knowledge of the application
 - better able to maintain the application,
 - and make modifications
- Total person-hours to develop, test and implement the pilot application amounted to approximately 200 hours. This included user instruction, and creation of a user manual.

METHODOLOGY

- Selection of key projects to monitor;
- Description of the process followed to get the project implemented;
- Review and analysis of the existing system and development of the project flow chart;
- Understanding of the basis of the existing system, bottlenecks and barriers, and opportunities for quick improvements;
- Defining quality, it's control points and it's measurement indicators;

METHODOLOGY (II)

- Setting stakeholder meetings (frequency, duration, etc.) to assess goals, objectives and desired basic system capabilities;
- Identification of point-person (liaison);
- Development of key reports jointly with point-person. And in parallel design the monitoring tool;
- Conduct pilot tests;
- Develop user manual and training materials
- Training and piloting stage;
- Full implementation (training, follow up, updates, etc.)

INFORMATION ORGANIZATION

Main Menu

Select Proj. Mgr. [dropdown]
 Select Program [dropdown]
 Select Project Status Active [dropdown]
 Select Project [dropdown]

Update Info Only Grant Info IGA Info Clear
 Reports User Manual Maintenance Forms Exit

Microsoft Access - [frmProjects : Form]

Select Program [dropdown] Search For Project [dropdown]

ID: 248 Transp. Program: Regional Transportatio Project Name: Gilbert Rd and University Dr. Intersection Project Mgr: Ahlstrom, Marc Transp. Contact: Sanderson, Alan Real Est. Contact: Torrez, Thomas M.

Project Description: Widen the intersection to provide three through lanes in each direction, dual left turn lanes and a right turn lane
 General Comments: SRP is performing the final review of the 12kV design. Right of way acquisition is continuing. 4
 Major Phase: Design
 Current Phase: Right of Way Acquisition - Last Update: 11/30/2007
 Project Status: Active

Fed. Fund [checkbox] IGA Req? [checkbox]

Important Dates Reference Numbers History Log Cost Estimates Funding Contacts City Staff Real Estate Updates

| Milestone Event: | Project Overview Est. | Baseline: | Estimated: | Actual: |
|---|-----------------------|-----------|------------|------------|
| Request Title Reports, Strip Maps & Legals | | 3/1/2006 | | 3/1/2006 |
| 90% Design | 4/27/2006 | 2/6/2006 | | 4/27/2006 |
| Environmental (Local Design & Federal Construction) | | | | |
| Final Design | 6/29/2006 | 6/2/2006 | | 12/13/2006 |
| IGA\JPA approval | | | | |
| Final Utility Relocation Plans | | 3/23/2007 | | |
| Start Appraisal & Offer Process | | 3/1/2006 | | 3/1/2006 |
| Obtain Right-of-Entry & Immediate Possession | | 4/7/2007 | | 5/1/2007 |
| Bid Opening (GMP) | 7/29/2006 | 2/1/2009 | 2/1/2009 | |
| Start Utility Relocations | | 3/1/2009 | 3/1/2009 | |
| Utility Relocation Complete | | 6/1/2009 | 6/1/2009 | |
| Construction - Notice to Proceed | 11/1/2006 | 3/1/2009 | 3/1/2009 | |
| 25% Construction | 2/1/2007 | 6/1/2009 | 6/1/2009 | |
| 60% Construction | 7/1/2007 | 9/1/2009 | 9/1/2009 | |
| Construction Complete/Acceptance | 9/1/2007 | 11/1/2009 | 11/1/2009 | |

Schedule Update

Open MSURF Email to Prog. Mgr. Forms Print Project Info User Manual Reports Legal Docs Close

Record: 1 of 1 (Filtered)

BENEFITS OF USING THE APPLICATION

- **Consolidation of Information**
 - one place for project document and information storage, including milestones dates of various departments, cost estimate, funding sources, legal document images, and history log.
 - reduces significantly, the amount of paper used in tracking project status and other information.

BENEFITS (II)

- **Accessibility**
- Project managers from any location may perform updates. Other stakeholders, with appropriate permission, may also remotely view project information.
- **Central Repository**
- The application provides a central repository for all relevant project information. Information is more easily located, the accuracy and timeliness of data has been enhanced, and there has been a reduction of redundant information.

BENEFITS (III)

- **Enhanced Communication**
 - better, more transparent communication with the public and other agencies.
 - all interested parties may now obtain a report with the latest progress.
 - because of the required data fields and other error-trapping functionality, the amount of miscommunication or incomplete information has been greatly reduced.

BENEFITS (IV)

- **Accountability**

- Because of increased visibility, and ease of use staff are better at keeping the status of their projects up to date and accurate.

- **Development of Trust**

- Because of the completeness and accuracy of the data WE can rely on the information and can better manage their projects.
- Included in monitoring process: review reports being generated, and comment on them.
- If an issue is documented, it will be followed up on to a satisfactory resolution.

BENEFITS (V)

- **Development of a Common Language**
 - The application provides a common dialog
 - A common set of terms and naming/numbering conventions.
 - This reduces the amount of mistakes due to redundant data entry or confusion about the definition of terms.

LIMITATIONS OF USING THE APPLICATION

- **Capacity And Implementation**

- developing a “minor application project” for converting to a web-based

- **Computer Dependability**

- Rely on the database for updated project information.
- If the city’s computers or servers are not functional, project updates are not set to be stored or requested in another way.

- **Requirement Of Computers And Some Hardware**

- Access 2003; users with Access 2000 were frequently getting error messages for the application

was developed in Access 2003 library settings

LESSONS LEARNED

- The application ought to provide services to all.
- Frequent meetings: minimize misconceptions or the amount of changes to the requirements.
- The scope of the project, once defined, should be strictly adhered.
- The application needs to be easy to use and the user interfaces intuitive: user manual, and the ability to email the program manager with questions or comments; support staff IS A MUST.

LESSONS LEARNED

- Reports generated by the application need to satisfy all program and project stakeholders' requirements.
- Development of a project plan that defines Department priorities, implementation processes, budgeted and actual expenses, and a time frame with measurable milestones, and the tasks required to achieve those milestones.

FUTURE APPLICATION DEVELOPMENT

- Convert to a web-based :increased capacity & capability.
- Include and monitor actual project costs.
- Monitor work order expenditures & compare to .
- Expand the application capabilities to include direct input from stakeholders from other departments or external agencies.
- Develop live links to the City's accounting system for real-time access to expenditure data.
- Develop live links to project management software to provide the ability to manage critical path tasks & resources more effectively.

CONCLUSION

- Prior to the creation of this application, the City of Mesa's Transportation Department did not have projects information (difficult to obtain, was not consistent, and therefore often misleading or incomplete).
- Other challenges (then and now): limited staff, limited budget. Monitoring process corrected: internal and external communications, efficiency and efficacy of update process, and reliable project status.
- Monitoring database is JUST A TOOL for rapid application development and is maintainable by the application users; adequate until it is

Questions

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