

EGIS Implementation Planning for Utilities: A Dynamic Planning Model

Use of Progressive Elaboration in EGIS Program Planning

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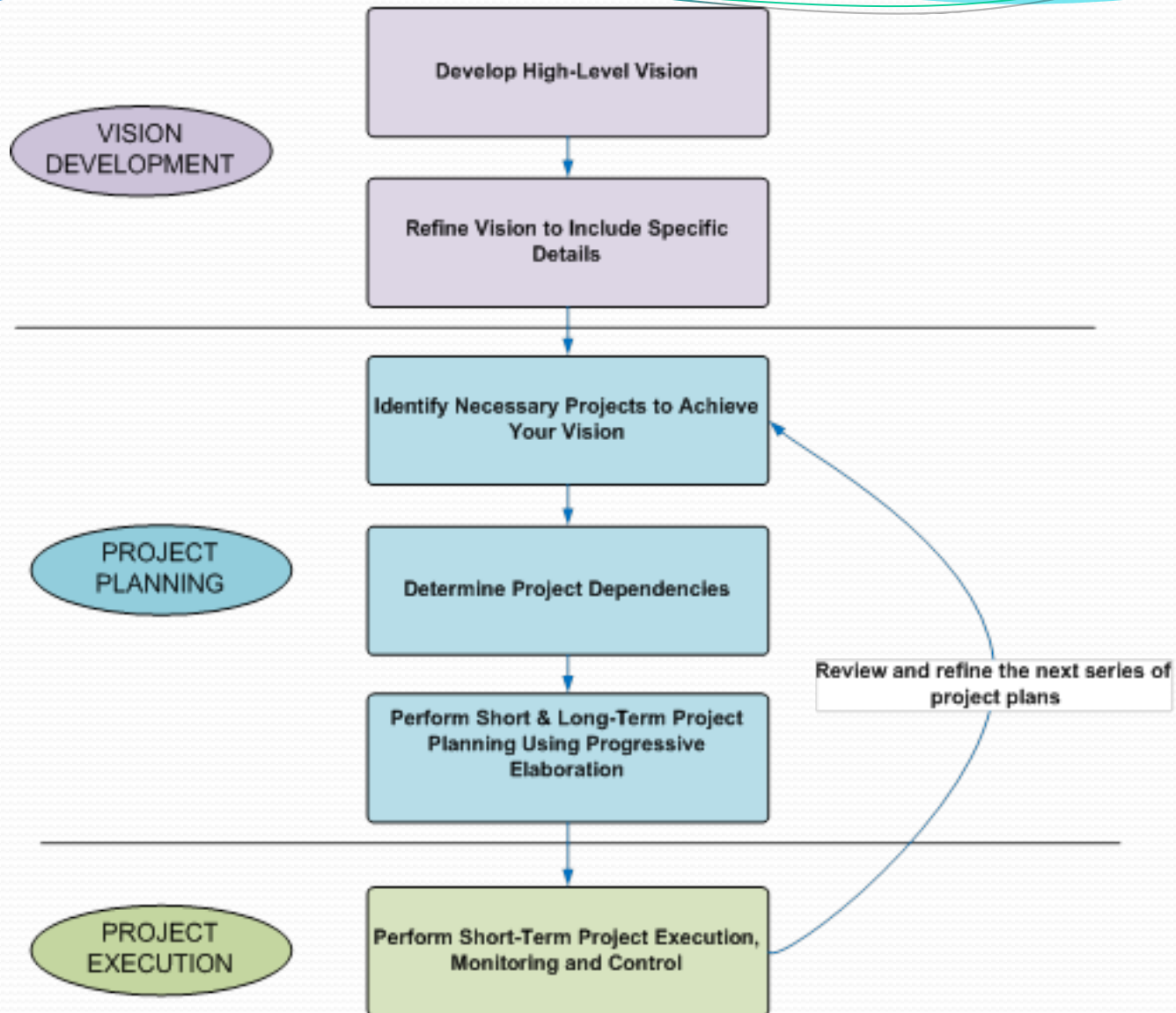


Summary

- Enterprise-wide GIS (EGIS) Program Planning can be a daunting task full of questions and fear of where and how to start. Then, once you start, how do you stay on track?
- Understanding the concepts of proper program management can save significant time and energy over the life-cycle of building your EGIS program.

Summary

- We'll explore three major processes involved in program planning;
 - Establishment of a program vision
 - Development of a program of projects that seek to achieve your vision
 - Process of project planning and project execution on the *program* scale



Programs versus Projects

- A project represents a single level of effort and usually has a well-defined scope of work including detailed requirements, executables and schedule. With projects you generally know what needs to be accomplished and have a clear path forward. Programs tend to have a much greater level of uncertainty.
- Generally speaking, a program is a set of related projects organized to accomplish a common vision. Programs span much longer time-frames and represent numerous levels of efforts (numerous projects). Each project in a program should represent a building block used to construct your program vision.

Progressive Elaboration

- Progressive elaboration allows projects in the short-term to be planned in detail, but mid to long-term projects will have only generally defined scopes. As short-term projects are completed more information will become available concerning available resources and organizational priorities.
- Detailed planning efforts will then “progress” to the next projects in line.
- Regardless of path shifts, progressive elaboration allows you to keep your direction heading towards your vision.

Progressive Elaboration in Program Planning – Conceptual Analogy:

- Let's look a look at the process of planning a family vacation to the beach as a good analogy of the process involved within program planning and progressive elaboration.
- You will be able to apply the concepts directly to your EGIS program to help reach success.

Develop high-level vision

- Development of a high-level vision should be done early in any process you undertake so you have an understanding of what you are trying to achieve and all actions moving forward are aimed at achieving your vision.

HOTEL ON THE BEACH

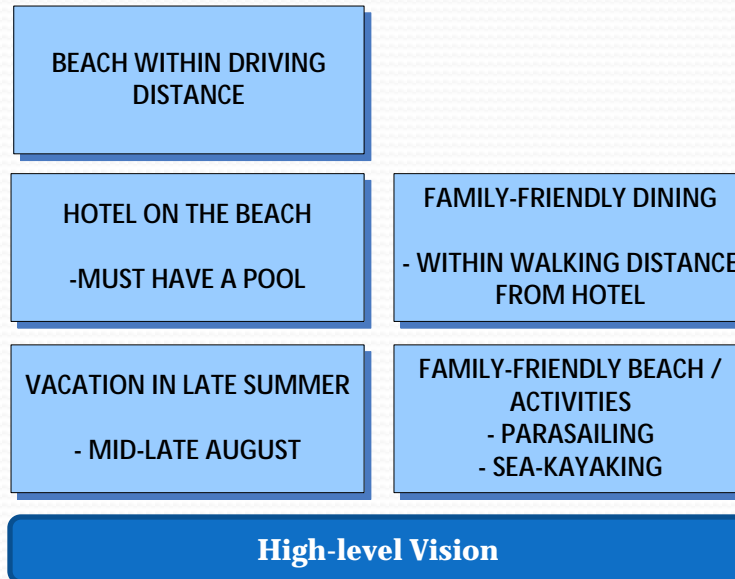
FAMILY-FRIENDLY DINING

VACATION IN LATE SUMMER

FAMILY-FRIENDLY BEACH /
ACTIVITIES

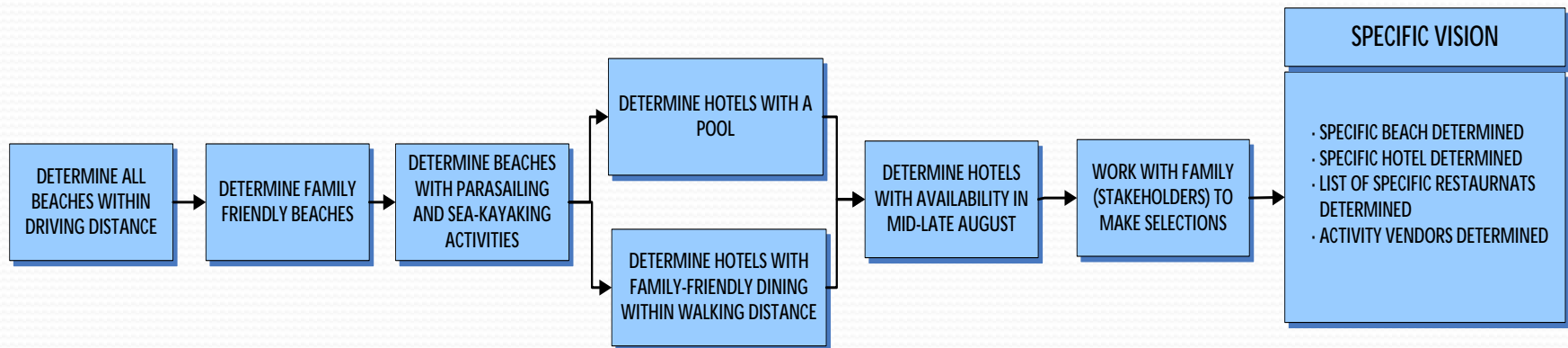
Develop high-level vision

- Use your very general understanding of what you want to accomplish as a discussion framework moving forward and add a greater level of detail to your vision..



Refine high-level vision to include specific details

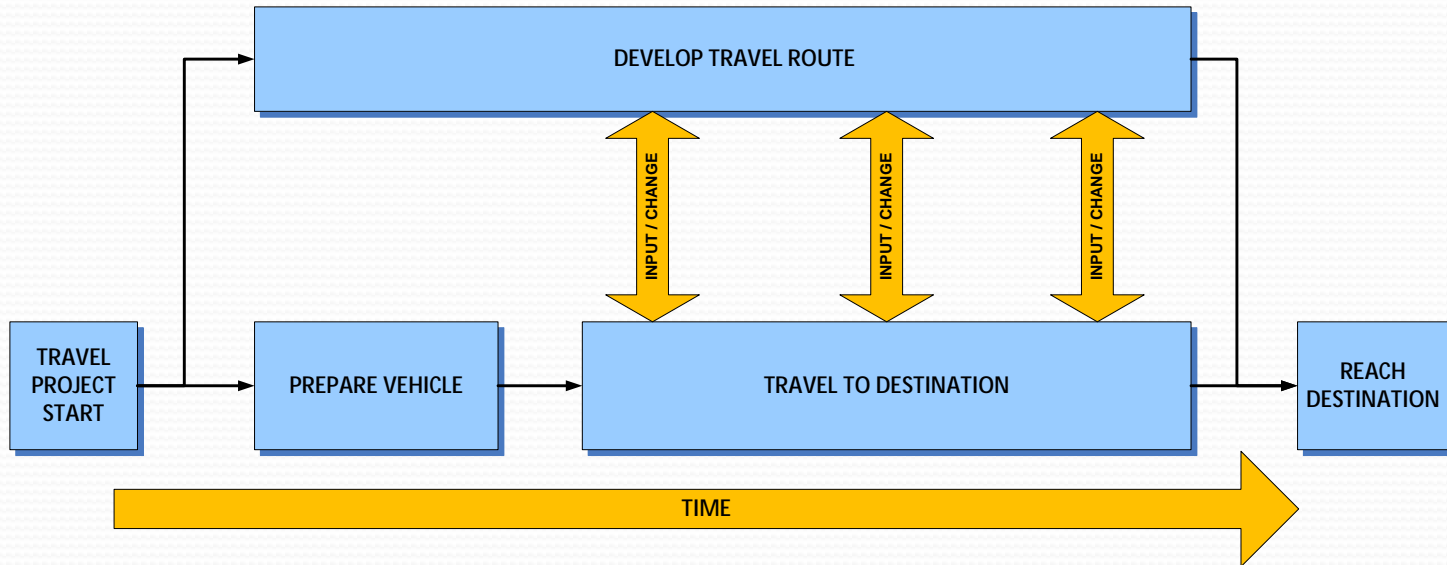
- Defining your high-level vision is an enormously important step which lays the foundation for more detailed planning efforts moving forward.
- There is a lot to plan and coordinate. You want to execute your tasks in the most efficient way and with clear direction or you will waste time.
- Specific details must be added to your vision before you can begin.



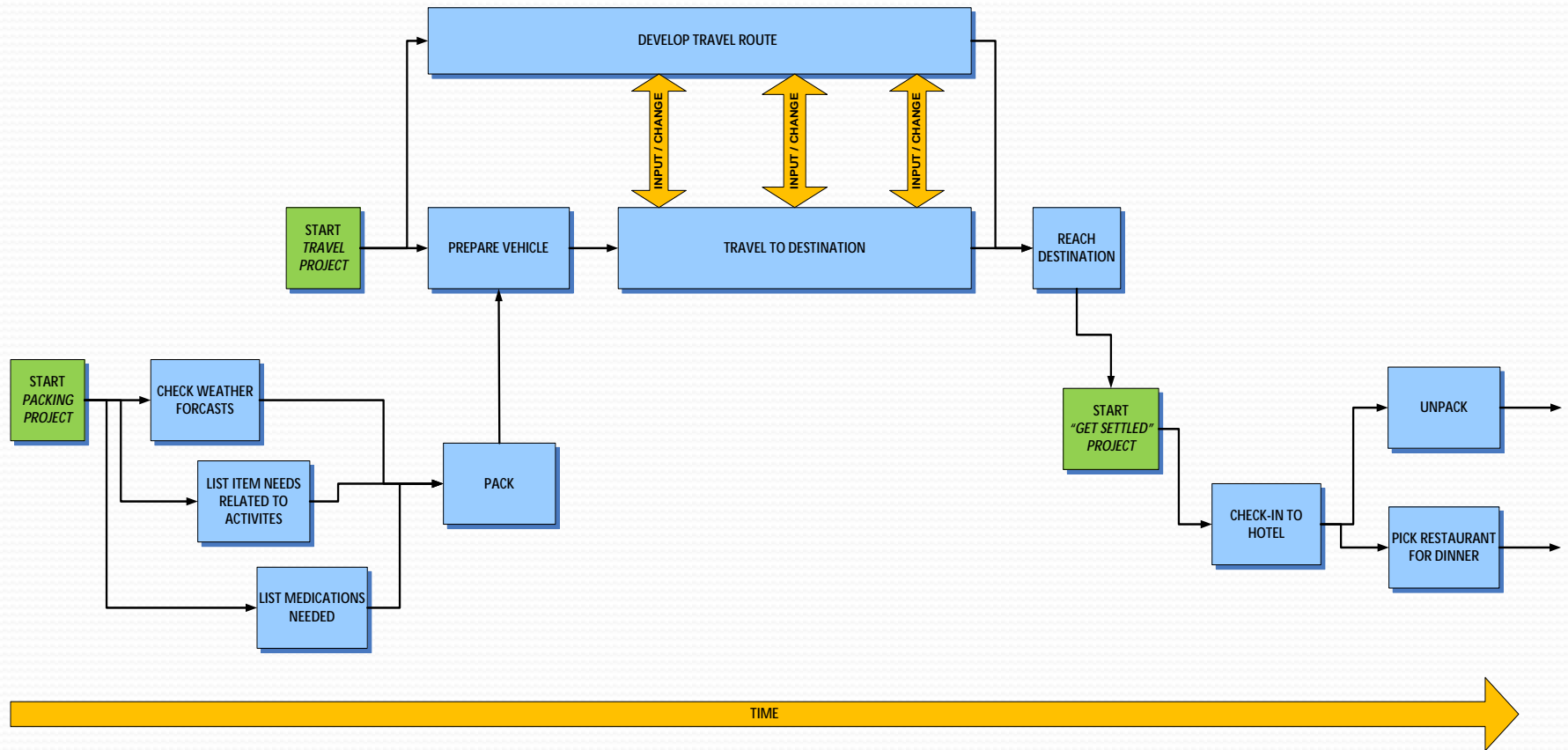
Identify necessary projects to achieve your vision and their dependencies

- What will allow for you to accomplish your specific vision?
- What decisions must be made? The answers to these questions will identify the projects you need to execute to achieve your vision.
- Let's look at one of those questions, **travel**. You've decided to drive to the beach but there are several dependencies to making sure you get to where you want to go on-time, safely, and reliably. Your *travel project* is comprised of several tasks:
 - Develop travel route
 - Prepare vehicle for travel
 - Travel to destination

Identify necessary projects to achieve your vision and their dependencies



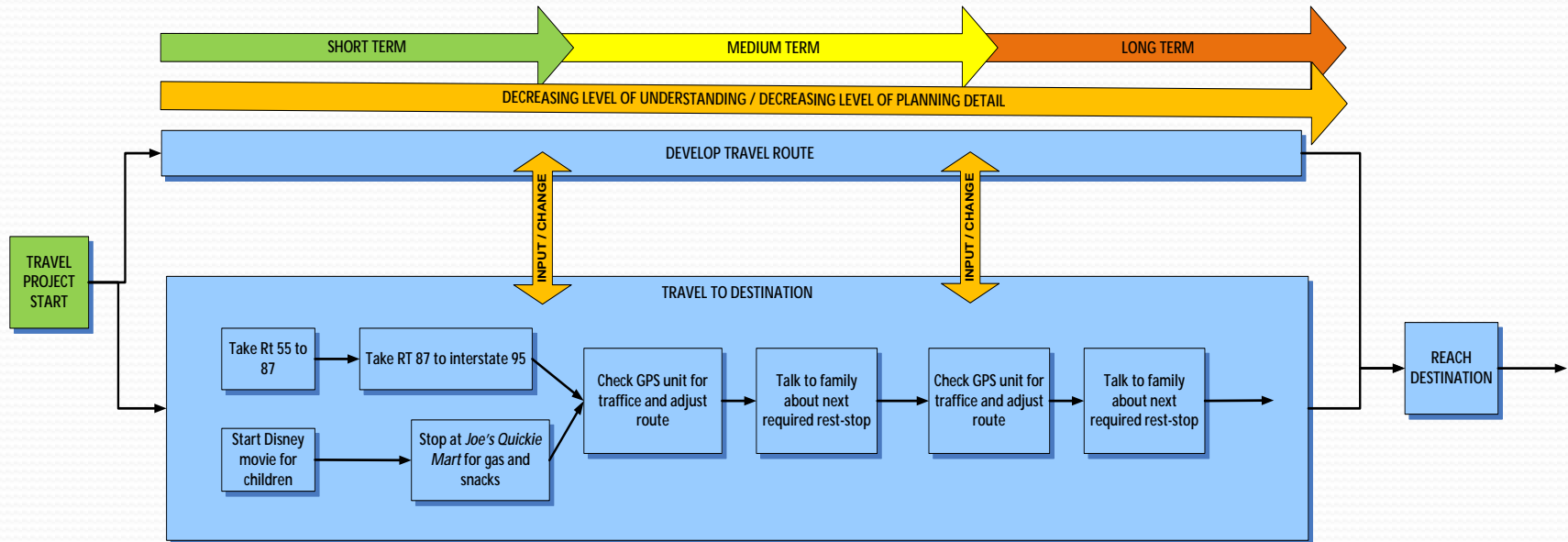
Identify necessary projects to achieve your vision and their dependencies



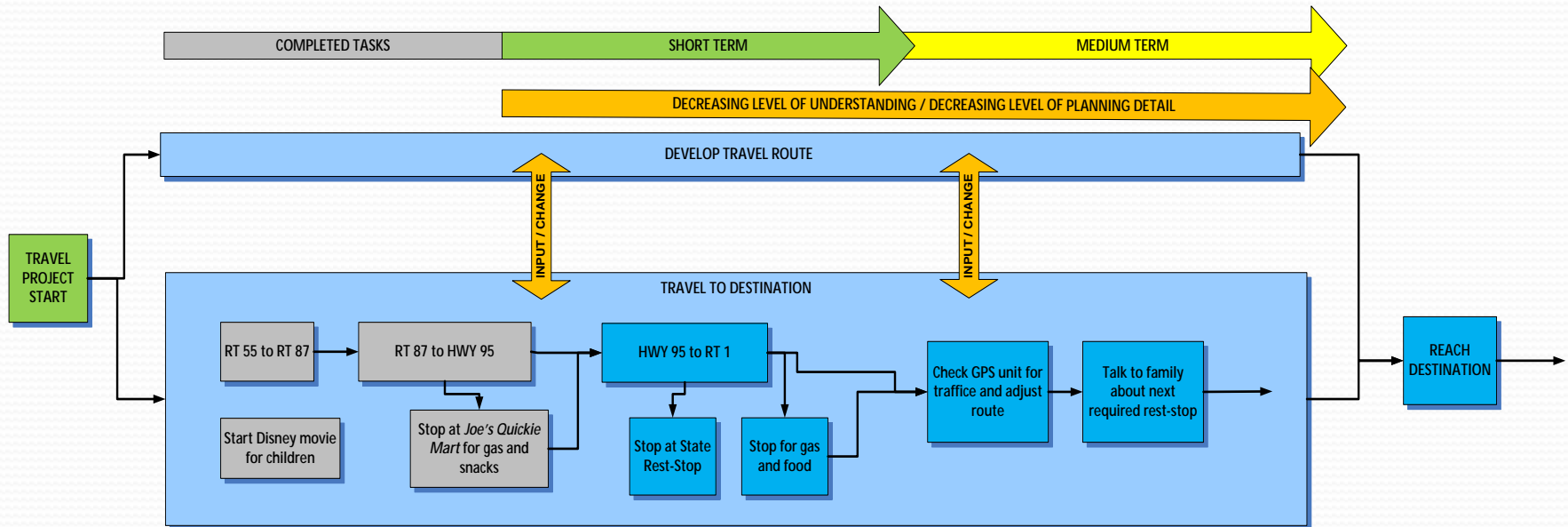
Perform short and long-term planning using progressive elaboration

- Detailed planning can only be done well in the short-term.
- While you need to have a good idea of the projects that are necessary to reach your vision, you can only plan projects in detail where detailed information exists.
- Over time your priorities, resources and the environment in which you are working will change. This is where *progressive elaboration* becomes such a useful tool.

Perform short and long-term planning using progressive elaboration



Perform short-term project execution

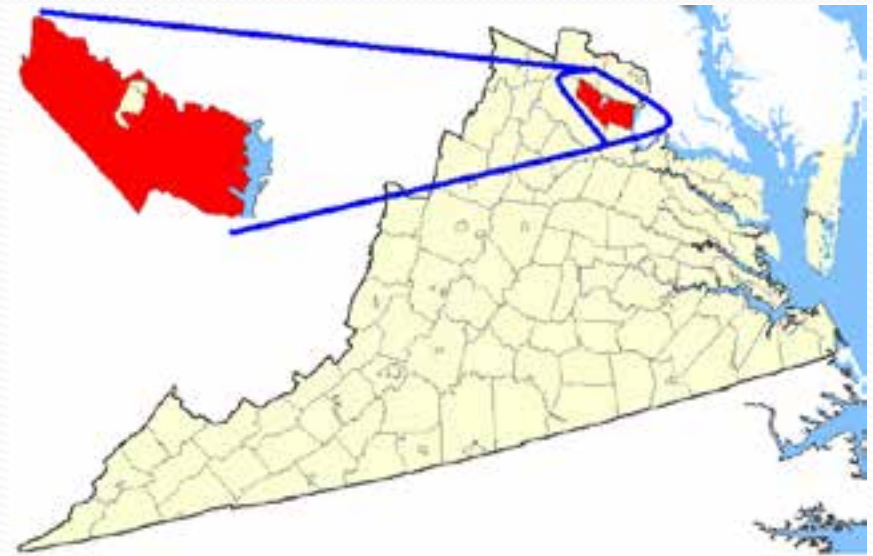




Case Study Review of the Prince William County Service Authority's EGIS Program Development Process:

Background: Prince William County Service Authority (PWCSA) – Enterprise GIS Transition Project

The Prince William County Service Authority is a wastewater and water utility serving the second largest county in Virginia.

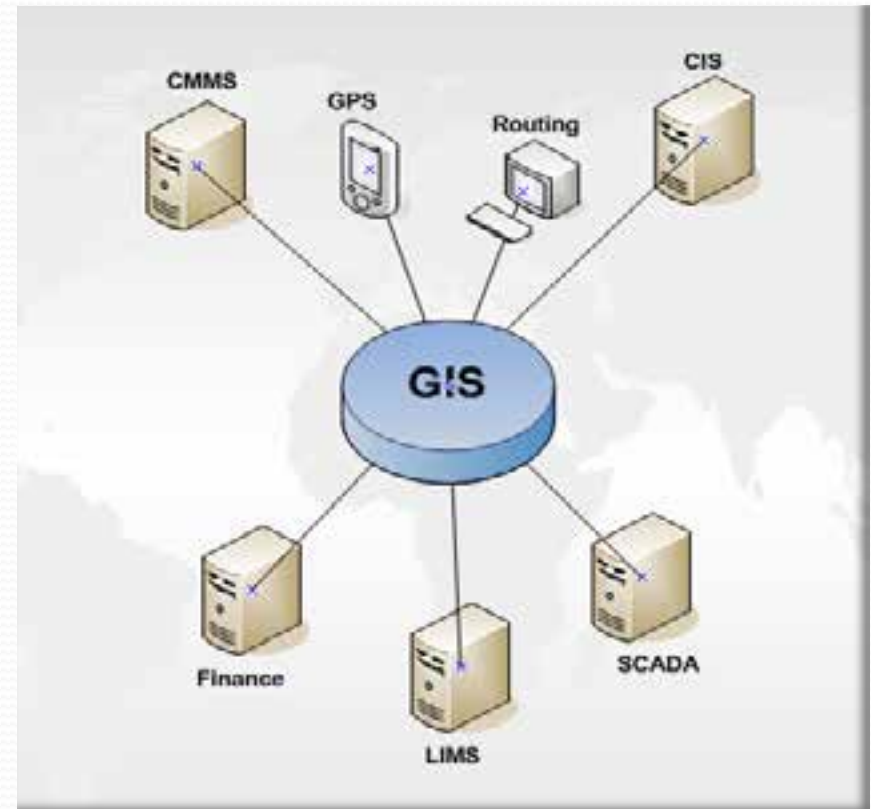


Had been using Autodesk CAD technology for last 10 years:

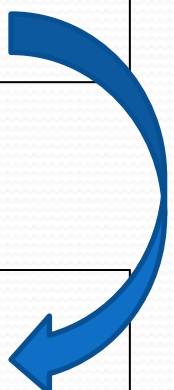
- Basic mapping capabilities
- Limited analytics
- No system integration
- Isolated (Silo) Departmental Processes and Analysis

GIS Vision - Become a GIS-Centric Organization

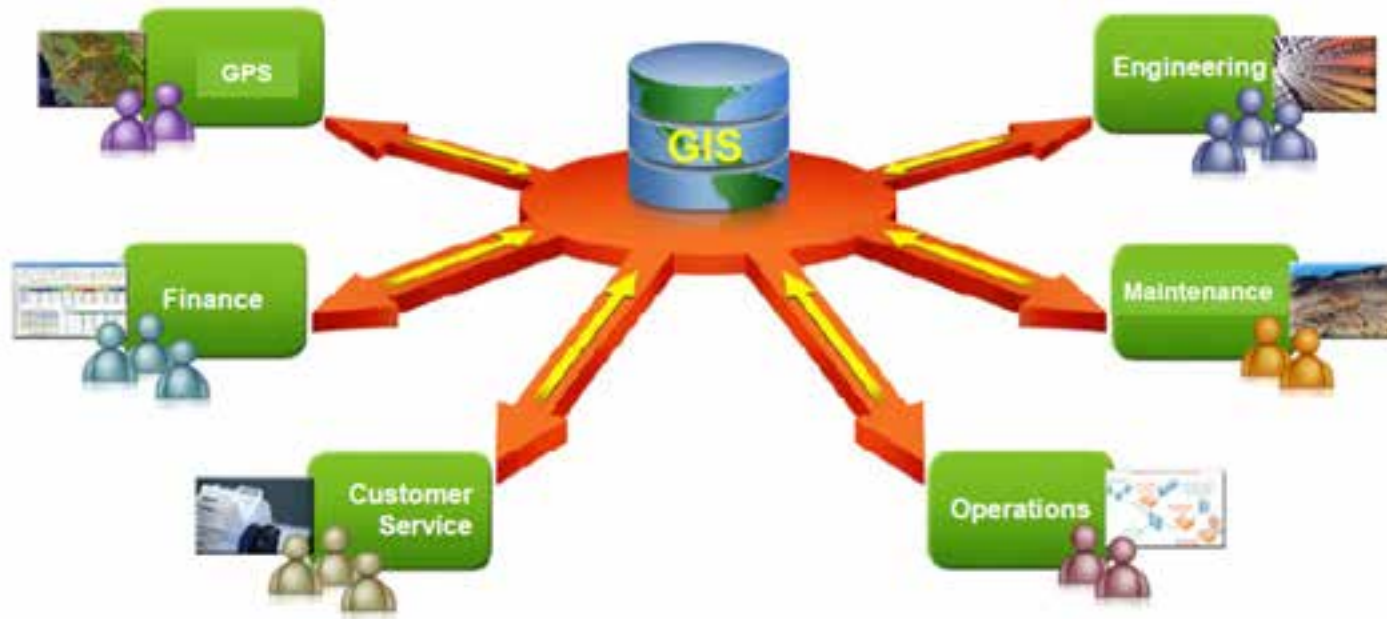
- § Reduce silos of information
- § Integrate GIS with other systems and enable advanced asset analysis
- § Visualize, access and analyze information from all departments in a spatial context
 - Operations & Maintenance
 - Customer Service
 - SCADA
 - Finance
 - Laboratory
- § Utilize GIS to improve internal workflows across all departments
- § Provide faster, more accurate and efficient services to its external and internal customers



Develop high-level vision

- “become nationally recognized as a steward of the environment and a premier provider of clean water and superior service by achieving excellence in our partnerships, our work culture, and our business practices.”
 - *The GIS is envisioned as the cornerstone of the SA integrated information technology environment.*
 - *By coupling GIS geospatial data along with non-spatial data of other SA systems, the SA will have the ability to provide faster, more accurate and efficient services to its external customers.*
 - *This will change GIS from another SA system into an operational requirement and a key component in the way the SA conducts business.*
- 

Develop high-level vision



Refine vision to include specific details

The GIS-Centric organizational approach was further defined to accomplish the following (partial list):

- Optimize design engineer's time
- **Provide access by all SA personnel to common data across IT systems in a spatial context**
- Reduce clerical costs associated with maintaining current data in multiple systems
- Increase O&M field crew efficiency due to integration of mobile, GIS, and work management
- Optimize scheduling of work
- Provide ability to better recognize and set priorities
- Identify critical assets
- Reduce crew windshield time/travel distance minimized
- Provide ability to provide customers information in seconds when they call in and improve the customer's experience

Identify necessary projects to achieve your vision and their dependencies

To properly determine the projects needed to reach the SA's GIS vision, the SA had to:

- (1) evaluate in detail its existing workflows and data quality across all major IT systems
- (2) determine user needs related to the specific GIS vision items, and
- (3) determine improvements in the way data was collected, stored, and integrated with GIS

Identify necessary projects to achieve your vision and their dependencies

Let's take a look at one of the specific vision items that contains a large number of project dependencies; *provide access by all SA personnel to common data across IT systems in a spatial context.*

- Integrate GIS with customer service system
- **Integrate GIS with work order management system (CMMS)**
- Integrate GIS with SCADA system
- Integrate GIS with financial system

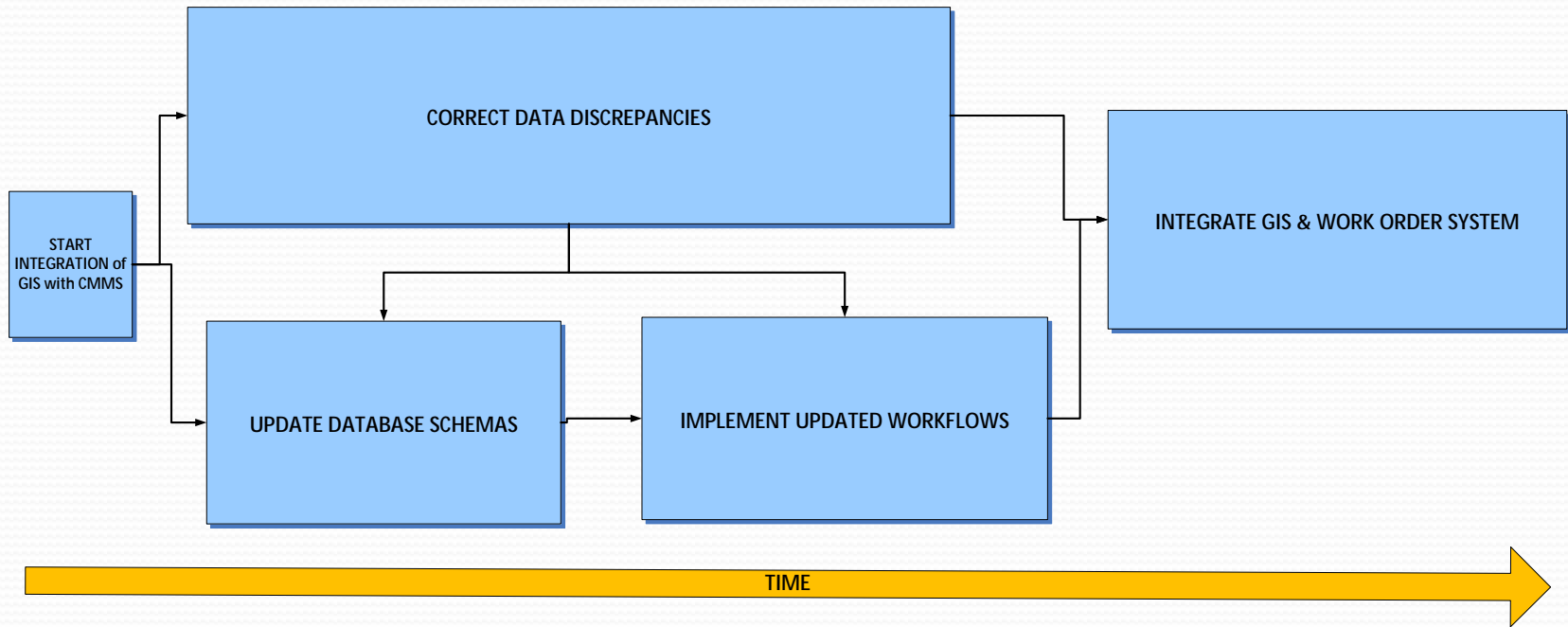
Identify necessary projects to achieve your vision and their dependencies

Integrate GIS with the work order management system.

In order for GIS to integrate with the work order management system the following tasks had to be accomplished:

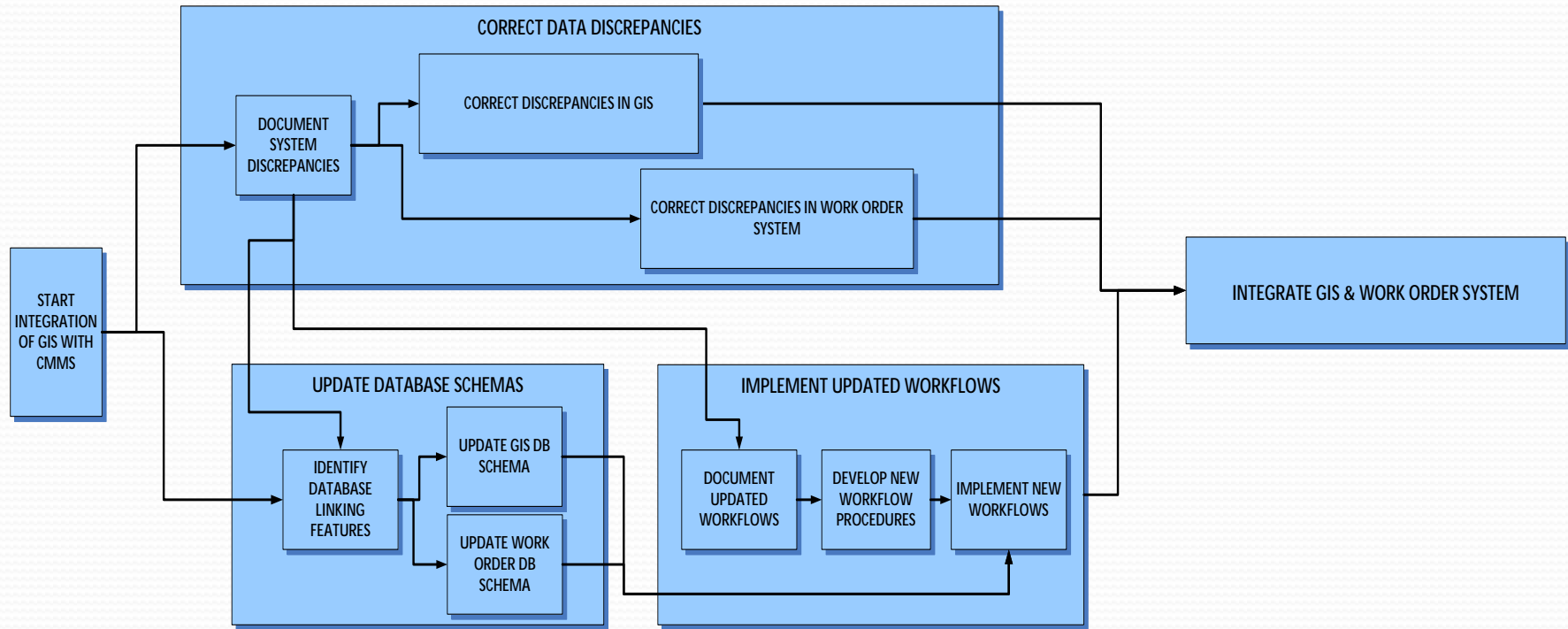
- Integrate GIS with work order management system
- Identify, refine, document and implement updated workflows related to data collection and storage
- Identify data discrepancies between the two systems and make corrections
- Determine database linking features between the two systems and make adjustments to one or both database schemas

Identify necessary projects to achieve your vision and their dependencies

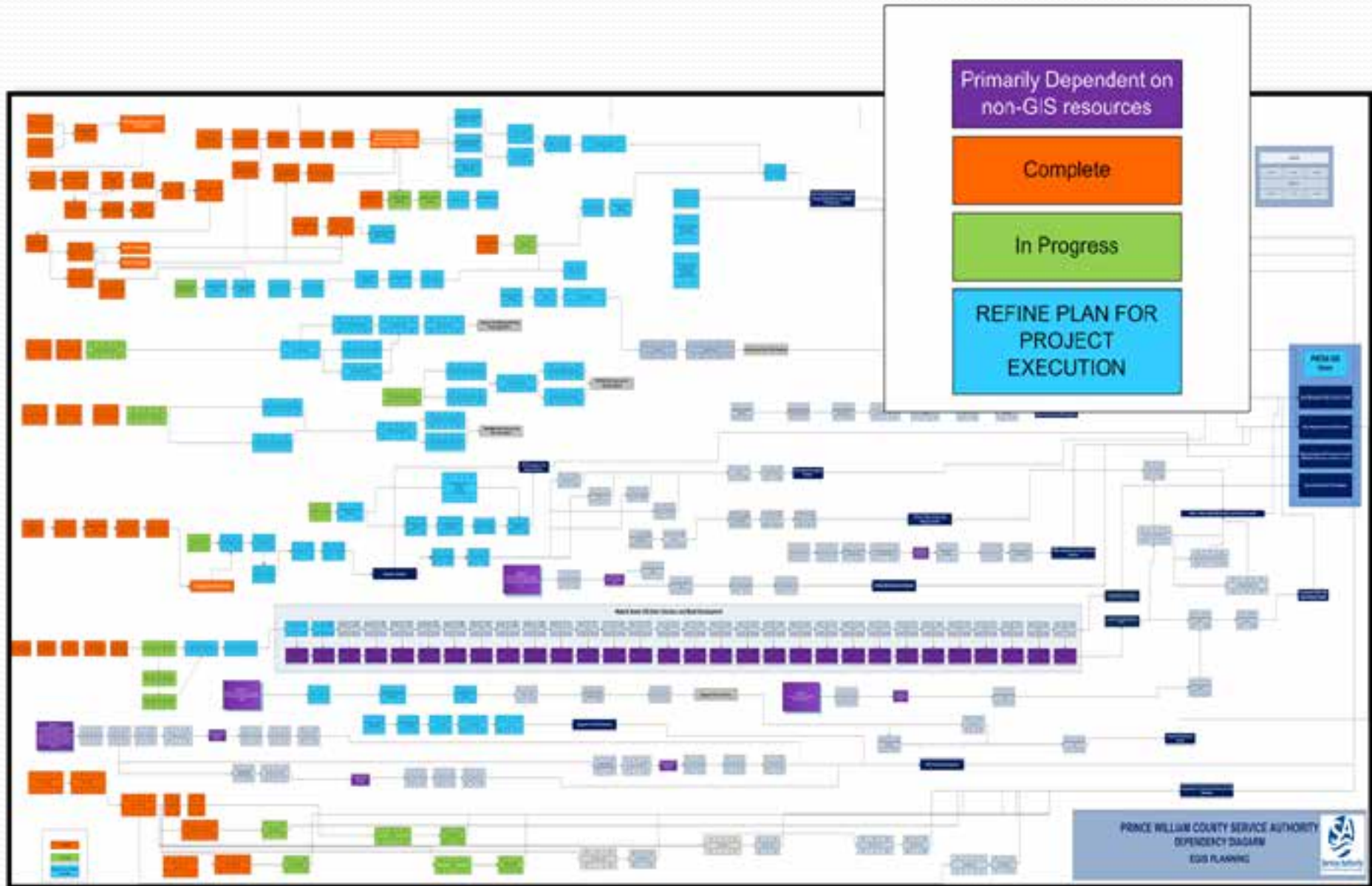


Perform short and long-term planning using progressive elaboration

- Through use of *progressive elaboration*, only those projects needing completion in the early phase of the EGIS program (the short-term) were planned in detail.



Perform short-term project execution



Key Ideas to Consider

- Program planning starts at the high-level and progressively adds detail (top-down approach).
- Each project is like a brick used to construct your program. Like building a house, you must pay careful attention to where each brick is placed (when it is completed) to ensure you progress as efficiently as possible.
- The vision is the guiding light that must be continually kept in mind or you can easily get off track.
- While there should be only one complete vision for your EGIS program the path to get there should bend and shift to accommodate change.
- Be flexible in your approach and plan for change – build opportunities to plan for change into your EGIS program planning approach through use of progressive elaboration and steadily watch as your EGIS vision becomes a reality.

Questions

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