DYNAMIC PROJECT MANAGEMENT

October 2017

PMI

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Division of Building Design and Construction

Department of General Services

Montgomery County Maryland

OUR MISSION

Montgomery County has a great interest in the highest quality buildings for the comfort of its occupants and those who visit them.

As a public developer, we are very interested in the best practices to sustain the environment through energy efficiency, pollution prevention, revitalizing communities, and establish standards and policies that will enhance life in the county.

OUR MISSION

Montgomery County DEPARTMENT OF GENERAL SERVICES
DGS
Delivering Great Service!

We are responsible to provide public facilities.

Public Projects

- **Public Request**
  - Direct Public Request
    - Citizens Boards and Groups
  - Request Through Departments' Strategic Plans
  - Suggested by CE or CC based on Public Policies

- **Public Approval**
  - CIP Review and Approval Process

- **Publicly Funded**
  - Public Funds
    - Sale of General Obligation Bond – GO Bond
    - Taxes – Operating Fund – Current Revenue
    - Grants
- Public-Private Funded
  - Public Funds
  - Private Funds

- Subject to **Public Review**

- Periodic **Report to Public**
- Records are Public

FUNDING, PLANNING, DESIGN AND CONSTRUCTION OF PUBLIC FACILITIES


Montgomery County DEPARTMENT OF GENERAL SERVICES
DGS
Delivering Great Service!
We are accountable to deliver projects on budget.

CAPITAL IMPROVEMENT PROJECTS

MONTGOMERY COUNTY MARYLAND PLANS, DESIGNS, CONSTRUCTS, AND OPERATES PUBLIC FACILITIES SUCH AS:

- Library
- Community and recreation center
- Indoor and outdoor pool
- Office
- Clinic
- Emergency management center
- Correction facility
- Judicial facility
- Police station
- Fire station
- Laboratory
- Art and performing center
- Conference center
- Theater
- Cinema
- Civic building
- Transit center
- Parking garage
- Bus and maintenance depot
- Liquor warehouse and store
- Animal shelter
- and host of other facilities that are all serving the citizens of the Montgomery County Maryland.

OUR MISSION

We are accountable to provide facilities as planned.

Montgomery County DEPARTMENT OF GENERAL SERVICES

DGS

Delivering Great Service!

We must have thorough knowledge of project management process.

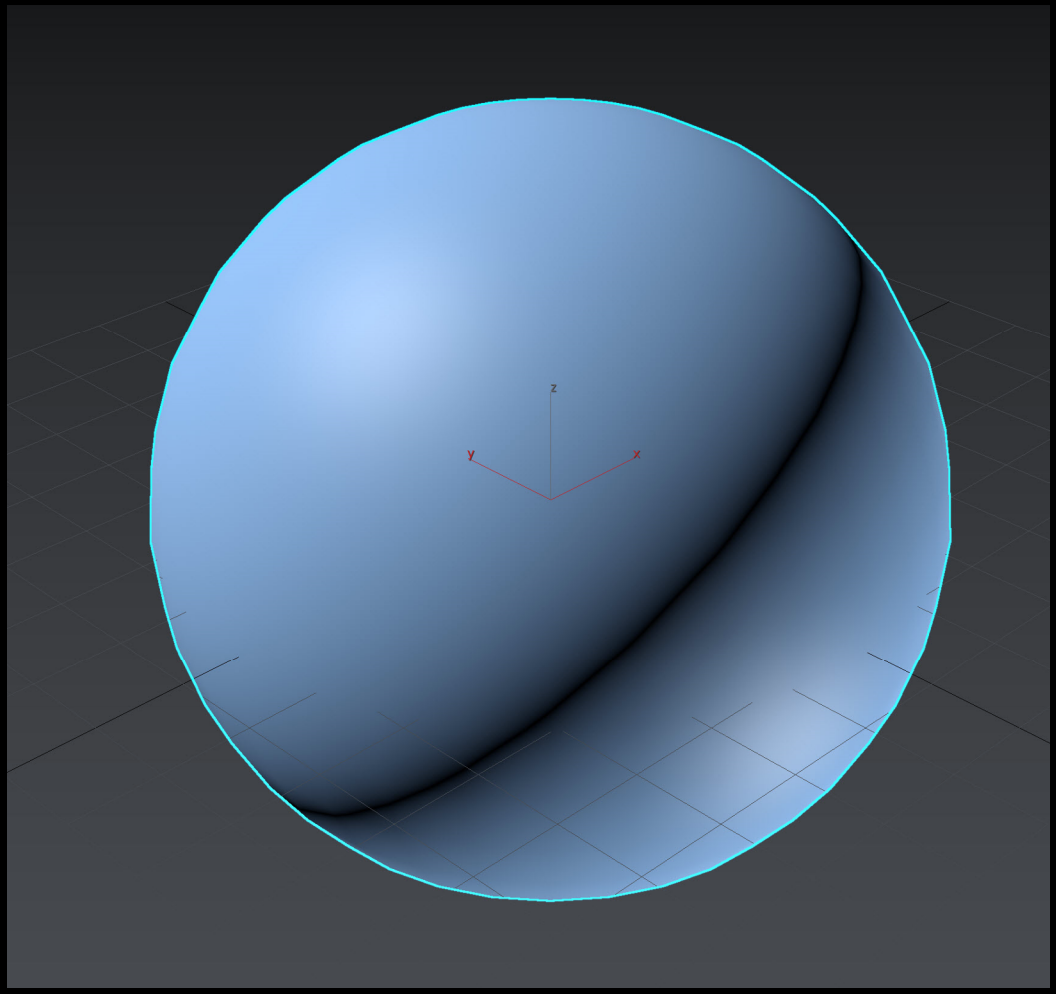
PROJECT MANAGEMENT

Project Management is a dynamic process in which a project is planned, designed and constructed to comply with a set of criteria that controls the project.

The set of criteria may evolve based on the policies, regulations and codes and is impacted by the market conditions and best practices in the field.

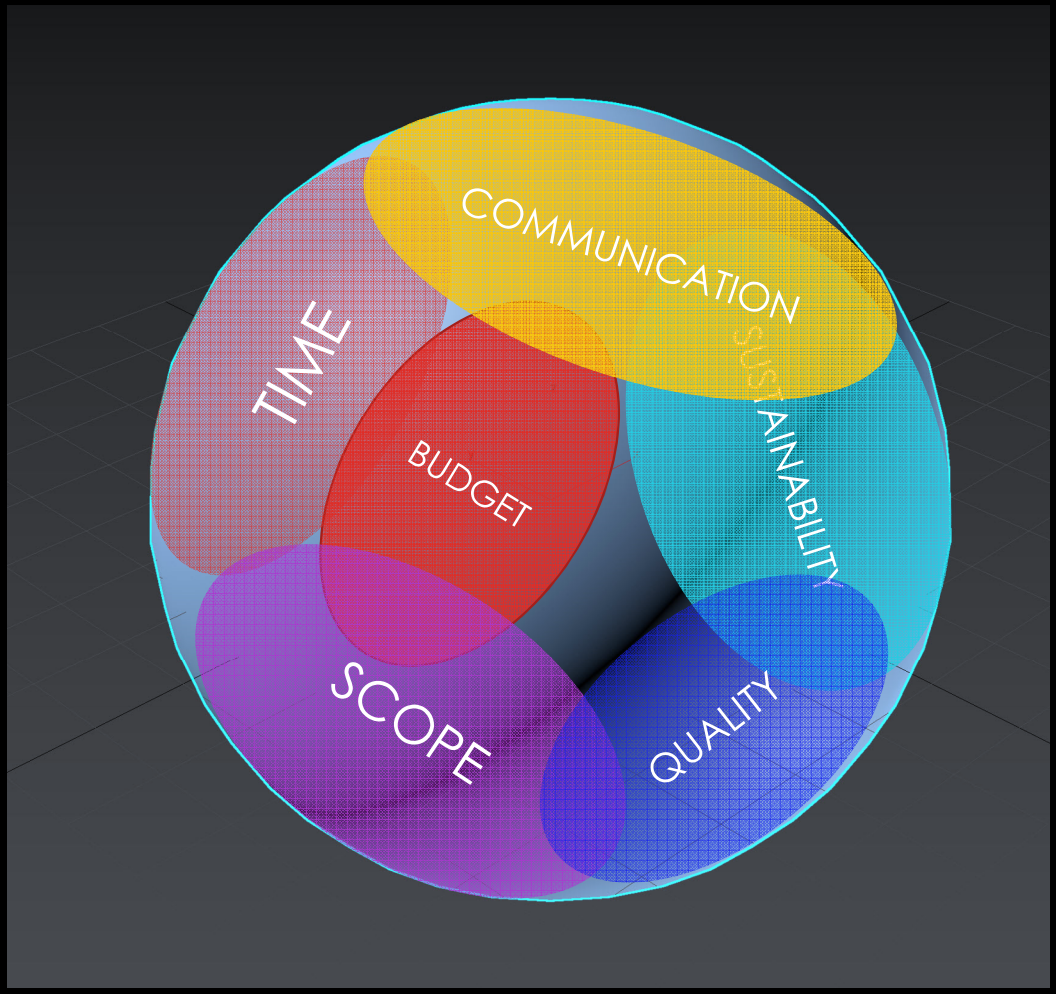
DYNAMIC PROJECT MANAGEMENT

World of Project



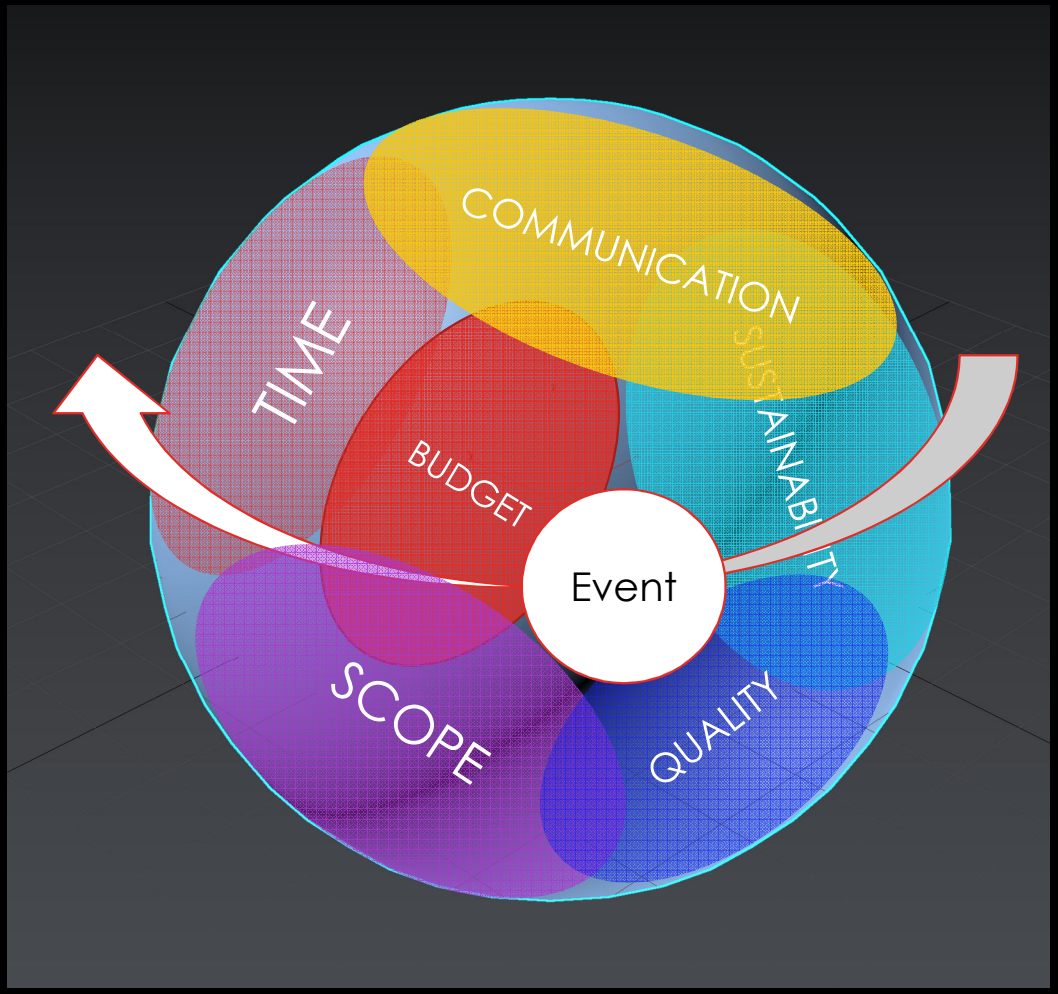
DYNAMIC PROJECT MANAGEMENT

- Each aspect occupies certain area of the world
- Aspects interact with each other
- One or more aspects may be more important than others.



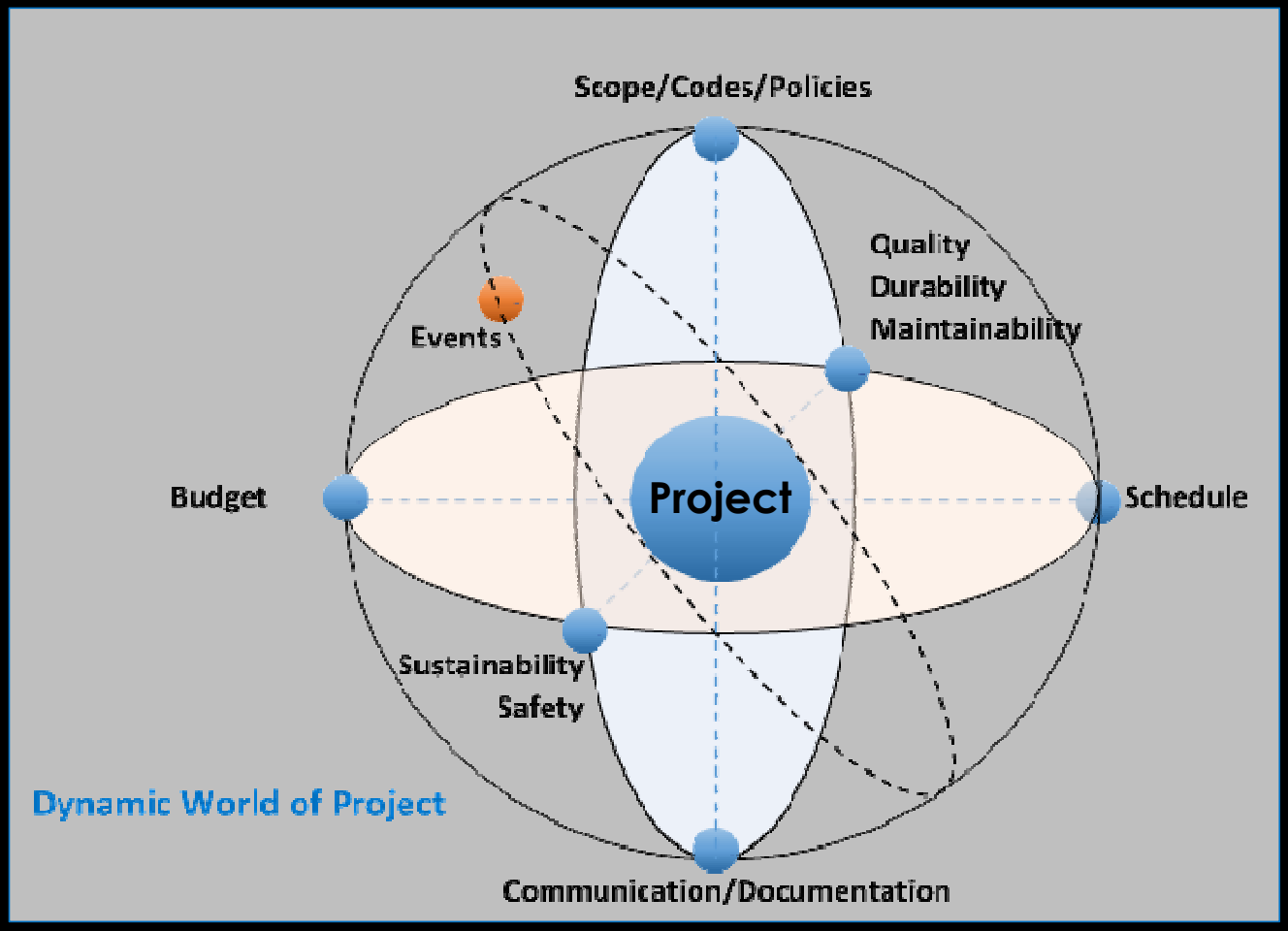
DYNAMIC PROJECT MANAGEMENT

- Events revolve around the world & impact aspects

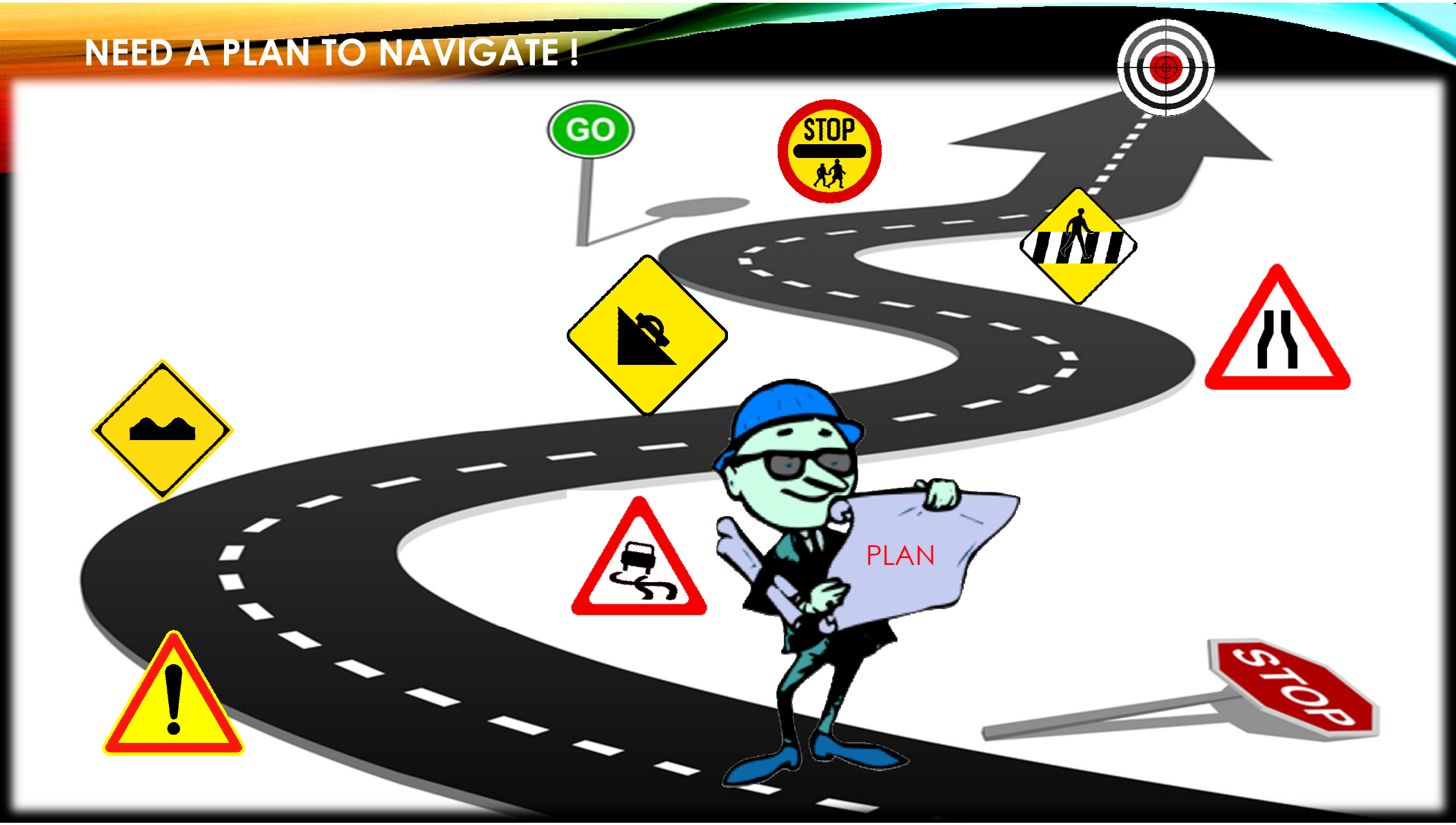


DYNAMIC PROJECT MANAGEMENT

- Aspects impact the project
- Aspects interact with each other
- One aspects may be more important than others.
- Events impact Aspects



NEED A PLAN TO NAVIGATE !



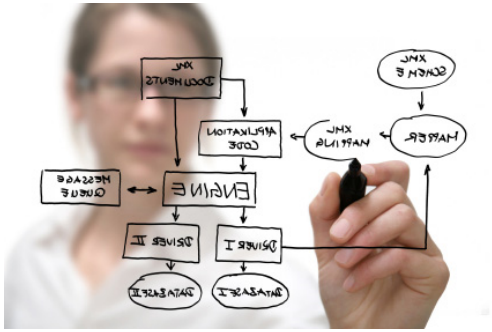
So,

How do we see life as a PM?

THE PROJECT MANAGEMENT TRAILER

ESTABLISHING A PROJECT MANAGEMENT PLAN

Map your path | Build your plan | Build your team | Evaluate risks | Monitor progress



What?
How?
When?
Where?

How complex is the project?
Where scope can change?
What kind of team you need?
What financial risks are there?
What are schedule issues?
What is the best method of delivery?

KNOWLEDGE AREAS & PROCESS GROUPS

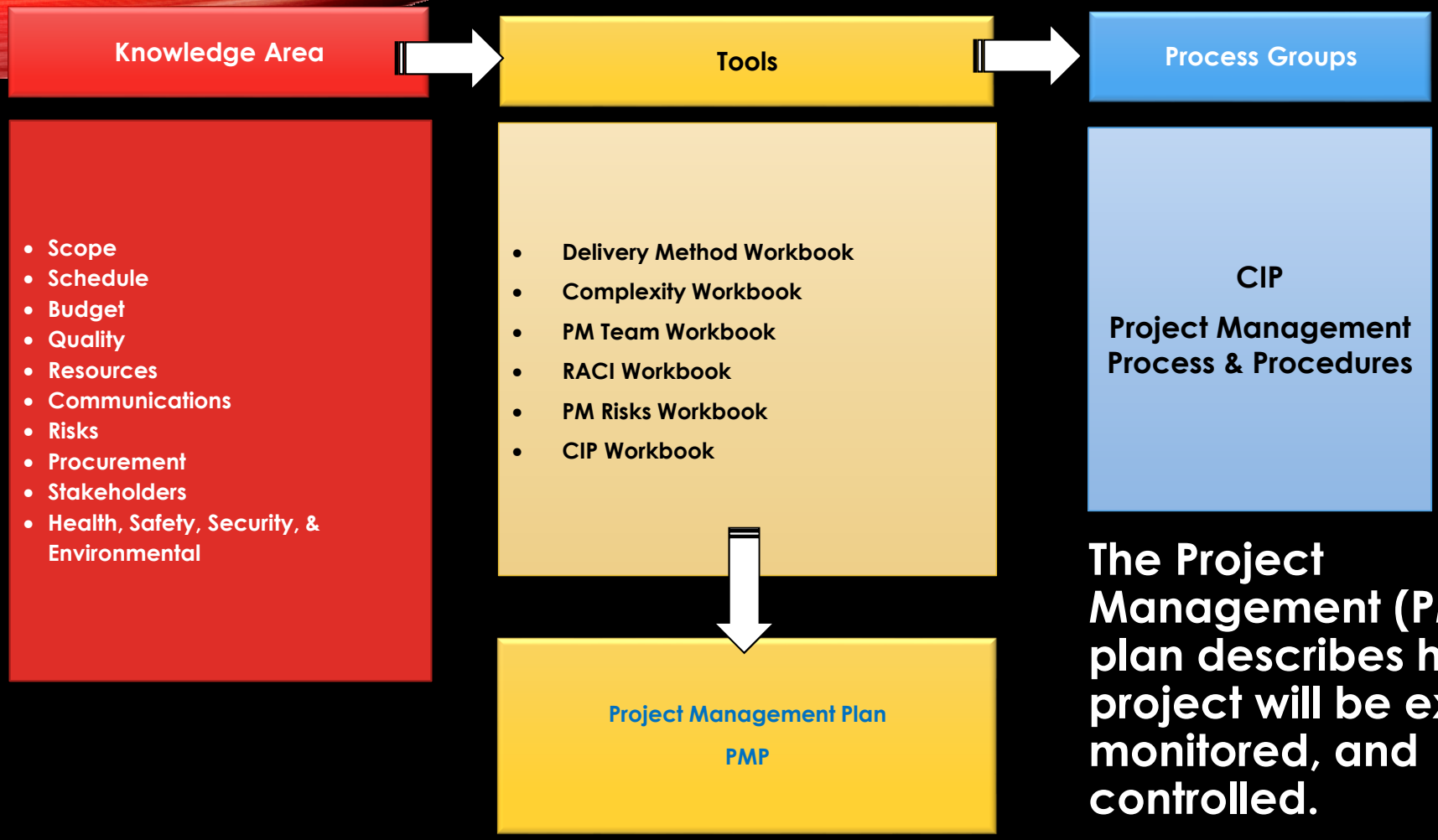
Project Management **Knowledge Areas** cover what a project manager needs to know to successfully manage a project.

Processes cover what a project manager and team must do to deliver a project successfully.

Process Groups are logical groupings of **processes**.

PROJECT MANAGEMENT PLAN TOOLS

Tools are used to generate Process Groups (Procedures)



The Project Management (PMP) plan describes how the project will be executed, monitored, and controlled.

PROJECT MANAGEMENT PLAN TOOLS

The Project Management Plan introduces a series of tools and workbooks to be used by Project Managers during all CIP processes.

Workbooks are series of Excel based tables and charts that by providing project information will produce results and guides.

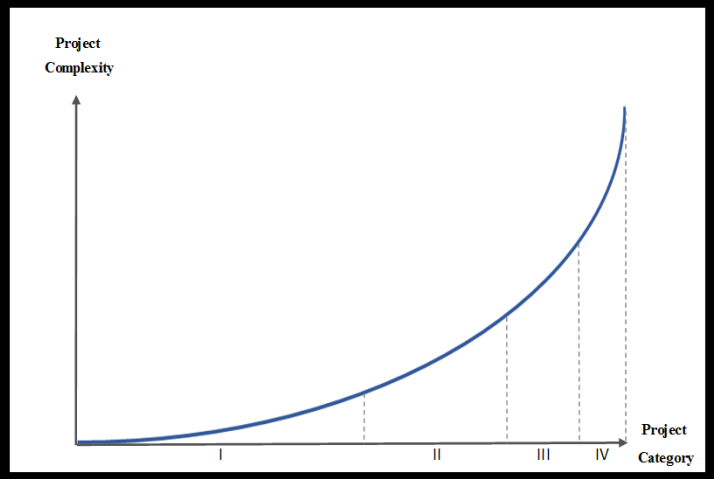
These tools are designed to help Project Managers in decision making and managing their projects.

PROJECT MANAGEMENT PLAN TOOLS

- Project Complexity Workbook
- Project Management Team Workbook
- Project RACI Workbook
- Project Delivery Method Workbook
- Project Goals and Constraints Workbooks
- CIP Workbook

PROJECT COMPLEXITY WORKBOOK

The complexity of the project will Increase with significantly higher rates as we include more constraints to the project.



Ib	Constraints	Level A	Level B	Level C	Level D
3	Construction Duration	< 6 months	6 months - 1 year	1- 2 years	> 2 years
		3	0	0	0
4	Deadline	no deadline	standard	standard	short duration
		4	0	0	0
4	Budget	< $3M	$3M to $20M	$20M to $100M	> $100M
		0	4	0	0
3	Building Gross SF	< 20,000 SF	20,000 - 80,000 SF	80,000 - 200,000 SF	> 200,000 SF
		0	0	0	3
2	User Agency	Single User	2-3 Users	4-5 Users	> 5 Users
		0	2	0	0
2	Public/Private Agencies	No partner	1 partner	2 partners	> 2 partners
		0	0	0	2
3	Property Owner	County	Shared ownership	non-county owners	Multiple non-county owners
		0	0	3	0
1	Maintenance and Energy	County	Shared ownership	non-county owners	Multiple non-county owners
		0	1	0	0
4	Renovation	non-occupied	partially occupied	Fully occupied	multi-story occupied
		4	0	0	0
1	Site constrains (hilly -landfill -wetland)	None	1 out of 3	2 out of 3	All
		0	0	0	1
1	Nonprogram elements (transit - plaza ...)	None	one	Two	Multiple
		0	0	1	0
3	County Experience	Done Before	close similarity	Departure	no experience
		0	0	3	0

Project Category	III

PROJECT TEAM WORKBOOK

STAFF	# of Personnel	Experience (Years)	Availability (PT-FT)
Construction Rep	2	8	FT
Construction Rep. Assistant	1	6	FT
Project Manager	1	10	FT
Project Manager Assistant	1	8	FT

CONSULTANTS	Required	Similar Projects Exp.	Selection System Min.
AE	Y	Y	RFP
Surveyor	Y	0	TO
Cost Estimator	Y	0	TO
Geotechnical	Y	0	TO
Cx Consultant	Y	0	TO
Traffic Study	Y	0	TO
Material Testing/Inspection	Y	0	TO
Construction Management	Y	Y	TO
Quality Control AE	Y	Y	TO
Building Envelope	Y	Y	TO
BIM Clash AE	Y	0	RFP

BUILDER	Required	Similar Projects Exp.	Selection System Min.
General Contractor	Y	Y	RFP
GC Cx agent	Y	Y	RFP
GC QC agent	Y	Y	RFP
Scheduler	Y		RFP
GC Foreman	Y	Y	RFP
Specialty Subs	Y	Y	RFP

Project Category	III

RESPONSIBILITY ASSIGNMENT MATRIX WORKBOOK- RACI

RACI matrix, is a tool to identify the roles of project participants on each task of a project. Roles are:

….Responsible …..Accountable …..Consulted …..Informed

Responsibility Assigmenet Matrix **R**esponsible **A**ccountable **C**onsult **I**nform		Division Chief	Deputy Chief	Section Chief	Project Manager	Construction Representatives	GC (General Contractor)	A/E (Prime Design)	Cost Estimator	Geotechnical	Survey	ADA Consultant	CM Advisor	Traffic study	Prevailing Wage Monitoring	Testing Agencies	Commissioning	Building Envelope	Quality Control	Design Peer review	Additional Consultants	Scheduler	Specialized Inspectors	Facilities Management	OMB (Office of Management & Budget)	DTS (Department of Technology Services)	Real Estate Office	Using Agency	Permitting Services	Depart of Park & Planning	Facilities	Procurement	Public	Private Partners	Utility Providers	Stakeholders
		Owner Management Team					Contractor	Consultants																County Agencies				Regulatory and Code Enforcement Agencies								
Planning Process																																			
1	Using Agency Strategic Planning	C	C	A	R																														
1	DGS Condition Assessment	I	C	A	R																														
2	Facility Planning	I	C	A	R																														
3	POR (Program of Requirement)	I	C	C	R/A								C								C			C			C	C					C		
4	Preliminary Cost & Schedule		C	A	R																														
5	Project Risk Analysis	I	C	C	R/A								C								C			C			C	C					C		
6	Project Delivery Method																																		
7	Project Description Form (PDF)		I	A	R/A																														
8	Compettes for Capital Funding	C	A	A	R/A																														
9	Public Hearings Council Actions	A	R	R	R	I	I	I													I			I			I	I			I			I	
10	Inclusion in CIP		A	R	R																														
11	Re-evaluate Constraints																																		
12	Finalize Decisions		C	A	R																														

PROJECT DELIVERY METHOD WORKBOOK

To determine what type of delivery method suits the project based on known elements.

Category	Questions	Low	Med	High
resources	The roles for parties involved can be clearly defined			1
compliance	The project needs to comply with additional local, state or federal procurement statutes			1
stakeholders	Facility's features are fully determined and specified prior to selection of the contractor	1		
Control	The owner needs a significant amount of control over the end product		1	
Schedule	all design work must be completed prior to solicitation of the construction contract	1		
Schedule	Project duration in a constraint			1
Schedule	designer need ability to assess scheduling and cost ramifications as the design is developed		1	
cost	owner accepts liability for design in its contract with the contractor		1	
cost	owner exposure to contractor change orders and claims over design and constructibility issues		1	
relationship	contractor and designer are working together throughout the entire process to achieve cost			1
complexity	design decisions needs consideration from a construction perspective.		1	
cost	Technological and programmatic needs are mjor constraints	1		
Contract	Need single point of accountability for design and construction.	1		
duration	Owner can make definitive decisions and be responsive to decision request that needs to be		1	
Funding	Alternative revenue and funding sources needed to close a funding gap			1
Risk	Risk needs to be transferred to the private sector	1		
Resources	private-sector resources needed (i.e. efficiencies and innovations in construction, scheduling)	1		
O&M	Requires unknown long-term operations and maintenance	1		
O&M	total life cycle costs is a constraint	1		
Planning	duration and costs for the proposal process			1
Resources	high level of expertise is required to execute a P3 project.			1

Project managers shall use their best judgement to prioritize project constraints and make the final selection accordingly.

Delivery Method	Match %	
Design Bid Build	62%	
CM At Risk	70%	
Design Build	65%	
Public Private Partnership	83%	***

Evaluation Factors:	DBB	CMAR	DB	PPP
Primary Factors				
Delivery Schedule		++	++	
Complexity & Innovation		+	+	+
Level of Design		+	+	
Cost	++	+	++	++
Initial Risk Assessment		+	+	
Secondary Factors				
Staff Experience and Availability	+	++	++	
Level of Oversight and Control	+	+	+	
Competition and Contractor Experience		+	+	+

PROJECT GOALS AND CONSTRAINTS WORKBOOKS

GOALS

Rank the top 5 Project Goals from the List Below	
List of Potential Project Goals	**Select Rank**
Schedule	
Minimize project delivery time	2
Complete the project on schedule	
Accelerate start of project revenue	
Cost	
Minimize project cost	1
Maximize project budget	
Complete the project on budget	
Maximize the project scope and improvements within the project budget	3
Quality	
Meet or exceed project requirements	
Select the best team	
Provide a high quality design and construction constraints	
Provide an aesthetically pleasing project	5
Functional	
Maximize the life cycle performance of the project	4
Maximize capacity and mobility improvements	
Minimize inconvenience to the traveling public during construction	
Maximize safety of workers and traveling public during construction	

Once the top five goals are selected, the workbook provides the following result sheet:

General Project Goals	
1	Minimize project cost
2	Minimize project delivery time
3	Maximize the project scope and improvements within the project budget
4	Maximize the life cycle performance of the project
5	Provide an aesthetically pleasing project

PROJECT GOALS AND CONSTRAINTS WORKBOOKS

CONSTRAINTS

Rank the top 5 Project Goals from the List Below	
List of Potential Project Constraints	**Select Rank**
Schedule	
Utilize federal funding by a certain date	5
Complete the project on schedule	2
Weather and/or environmental impact	
Cost	
Project must not exceed a specific amount	1
Minimal changes will be accepted	
Some funding may be utilized for specific type of work (addition, alternate, etc	4
Quality	
Must adhere to standards proposed by the Agency	
High quality design and construction constraints	
Adhere to local and federal codes	3
Functional	
Traveling public must not be disrupted during construction	
Hazardous site where safety is a concern	
Return area surrounding project to existing conditions	

Once the top five constraints are selected, the workbook provides the following result sheet:

General Project constraints	
1	Project must not exceed a specific amount
2	Complete the project on schedule
3	Adhere to local and federal codes
4	Some funding may be utilized for specific type of work (addition, alternate, etc)
5	Utilize federal funding by a certain date

RISKS WORKBOOK – DELIVERY METHOD

Delivery Method
Risk Factors
Delivery Schedule
Project Complexity and Innovation
Level of Design

Delivery Method Selection Output:		
		Design-Build
Risk Factors	Opportunities	Obstacles
Delivery Schedule	☐ Potential to accelerate schedule through parallel design-build process ☐ Shifting schedule risk to D-B team ☐ Encumbers construction funds more quickly ☐ Industry input into design and schedule ☐ Fewer chances for disputes between agency and design-builders ☐ More efficient procurement of long-lead items ☐ Ability to start construction before entire design, ROW, etc. is complete (i.e., phased design) ☐ Allows innovation in resource loading and scheduling by DB team	☐ Request for proposal development and procurement can be intensive ☐ Undefined events or conditions found after procurement, but during design can impact schedule and cost ☐ Time required to define technical requirements and expectations through RFP development can be intensive ☐ Time required to gain acceptance of quality program ☐ Requires agency and stakeholder commitments to an expeditious review of design
Project Complexity and Innovation	☐ Designer and contractor collaborate to optimize means and methods and enhance innovation ☐ Opportunity for innovation through draft RFP, best value and ATC processes ☐ Can use best-value procurement to select design-builder with best qualifications ☐ Constructability and VE inherent in process ☐ Early team integration	☐ Requires desired solutions to complex designs to be well defined through technical requirements (difficult to do) ☐ Qualitative designs are difficult to define (example. aesthetics) ☐ Risk of time or cost constraints on designer inhibiting innovation ☐ Some design solutions might be too innovative or unacceptable ☐ Quality assurance for innovative processes are difficult to define in RFP

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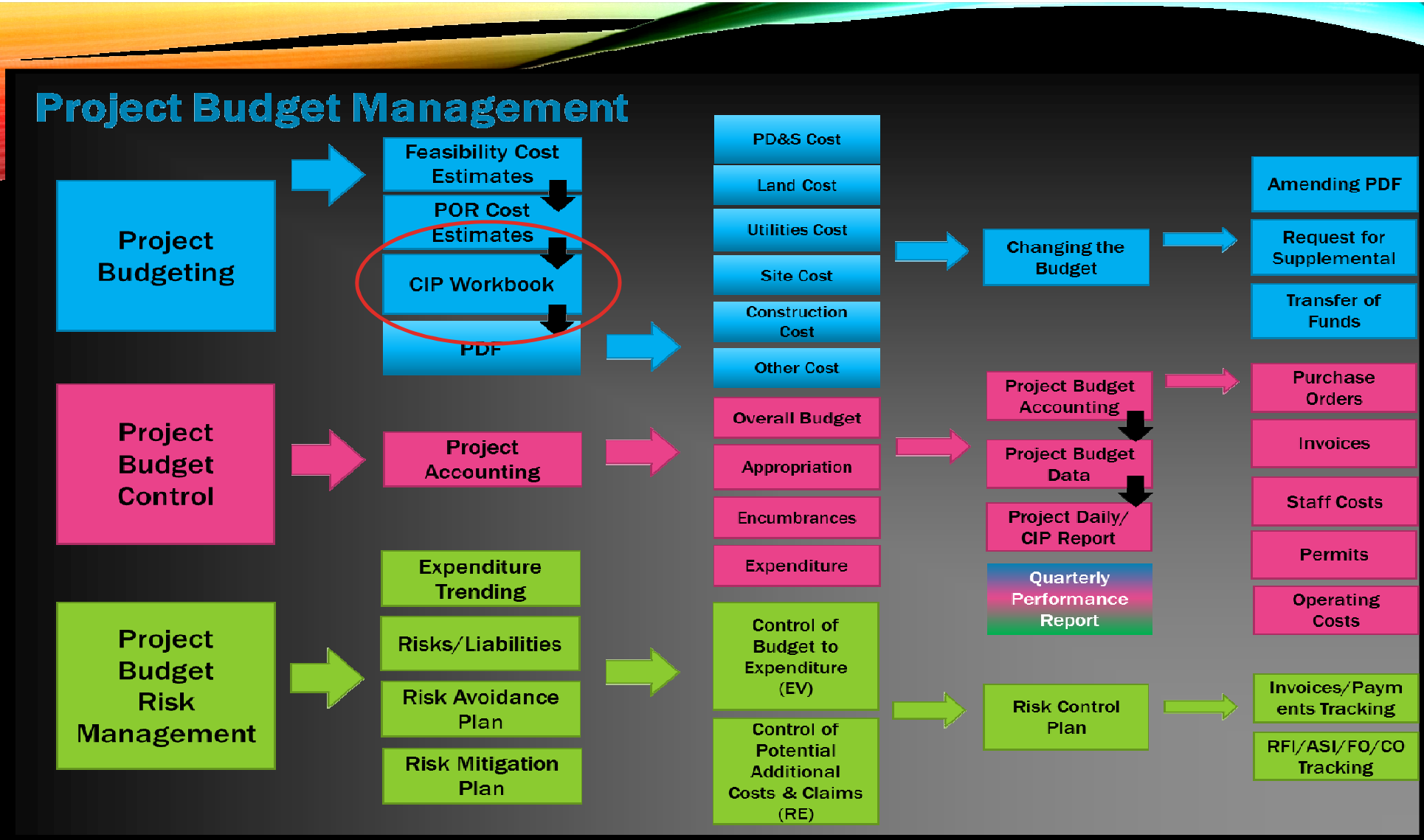
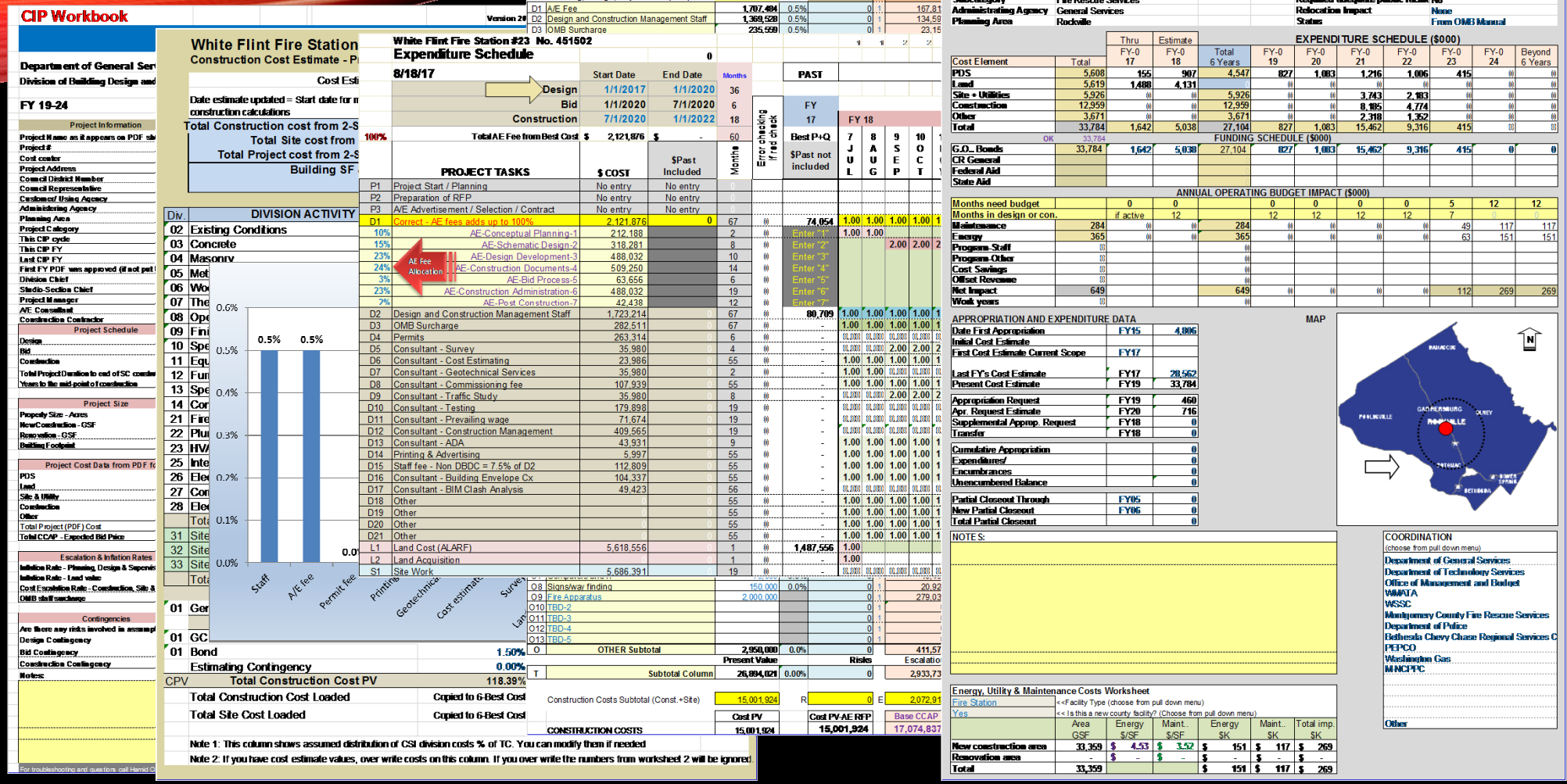
Delivery Schedule	☐ Potential to accelerate schedule through parallel design-build process ☐ Shifting schedule risk to D-B team ☐ Encumbers construction funds more quickly ☐ Industry input into design and schedule ☐ Fewer chances for disputes between agency and design-builders ☐ More efficient procurement of long-lead items ☐ Ability to start construction before entire design, ROW, etc. is complete (i.e., phased design) ☐ Allows innovation in resource loading and scheduling by DB team	☐ Request for proposal development and procurement can be intensive ☐ Undefined events or conditions found after procurement, but during design can impact schedule and cost ☐ Time required to define technical requirements and expectations through RFP development can be intensive ☐ Time required to gain acceptance of quality program ☐ Requires agency and stakeholder commitments to an expeditious review of design
Project Complexity and Innovation	☐ Designer and contractor collaborate to optimize means and methods and enhance innovation ☐ Opportunity for innovation through draft RFP, best value and ATC processes ☐ Can use best-value procurement to select design-builder with best qualifications ☐ Constructability and VE inherent in process ☐ Early team integration ☐ Sole point of responsibility	☐ Requires desired solutions to complex designs to be well defined through technical requirements (difficult to do) ☐ Qualitative designs are difficult to define (example. aesthetics) ☐ Risk of time or cost constraints on designer inhibiting innovation ☐ Some design solutions might be too innovative or unacceptable ☐ Quality assurance for innovative processes are difficult to define in RFP

Project Budget Management

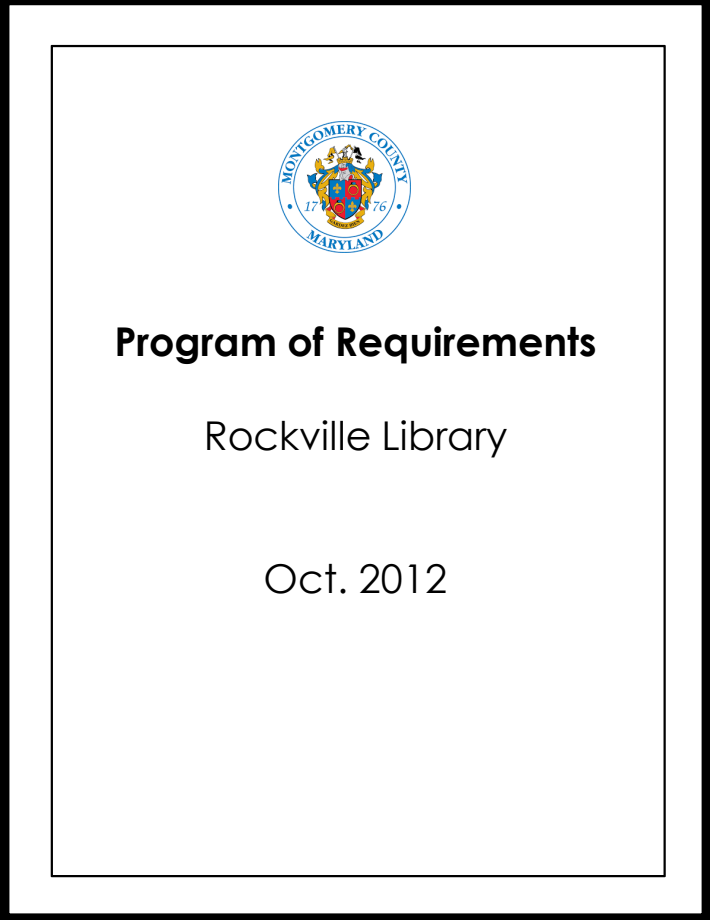


CIP WORKBOOK



PROGRAM OF REQUIREMENTS (POR)

POR Describes scope of the project in detail.



PROJECT MANAGEMENT PLAN

PMP is a binder including:

- Scope
- Budget
- Schedule
- Risks
- Team
- Delivery Method

CIP PROJECT PHASES & PMP

- Feasibility Study
- Site Selection
- Selection of Planning Consultant
- Planning Phase – Program of Requirements (POR)
- Establishment of Initial Project Management Plan (I-PMP)
- CIP Preparation and Approval Process
- Selection of Design Consultants
- Updating the Initial Project Management Plan (I-PMP) to Design Project Management Plan (D-PMP)
- Design Process
- Permits
- Selection of Construction Contractor
- Updating the Design Project Management Plan (D-PMP) to Construction Project Management Plan (C-PMP)
- Construction Process
- Warranty Period
- Project Closeout
- Updating the Construction Project Management Plan (C-PMP) to Final Project Management Plan (F-PMP)

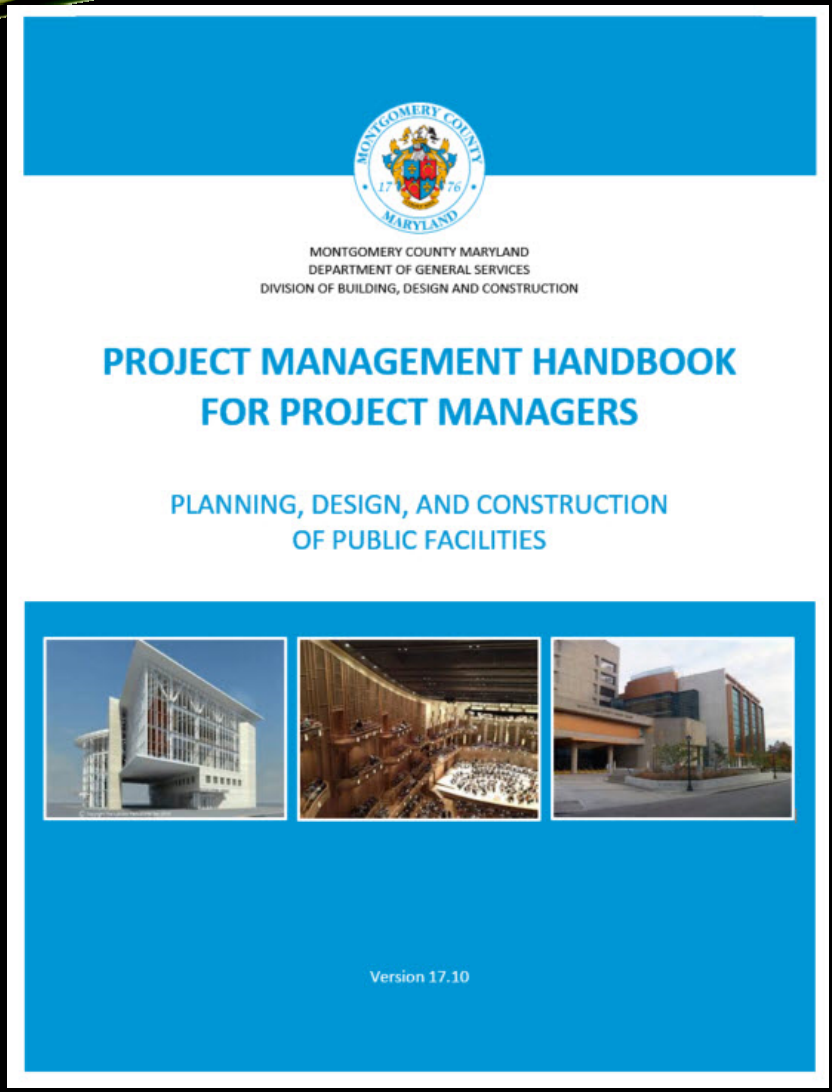
Project Management Plan I-PMP

Project Management Plan D-PMP

Project Management Plan C-PMP

Project Management Plan F-PMP

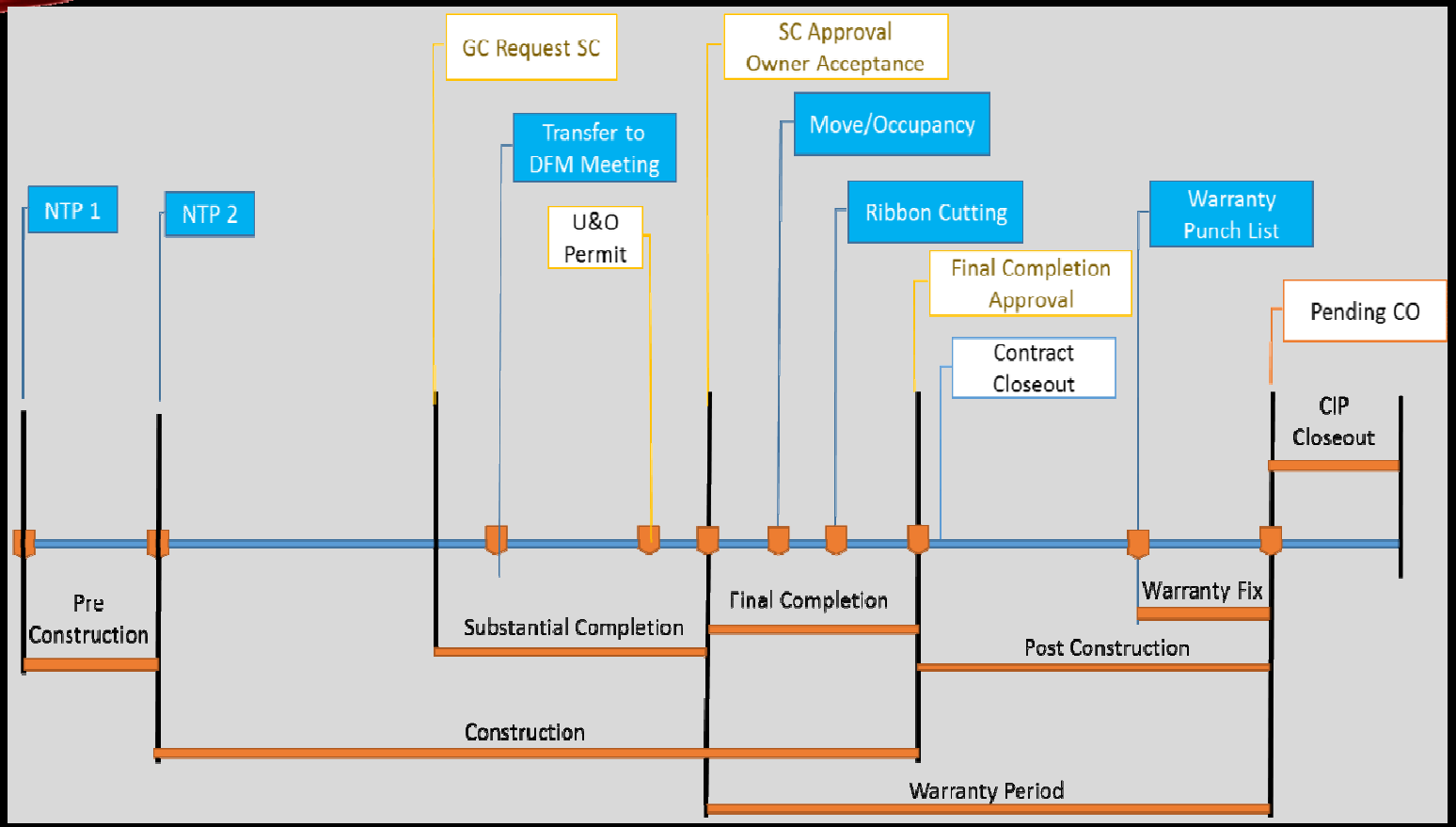
CIP PROJECT MANAGEMENT



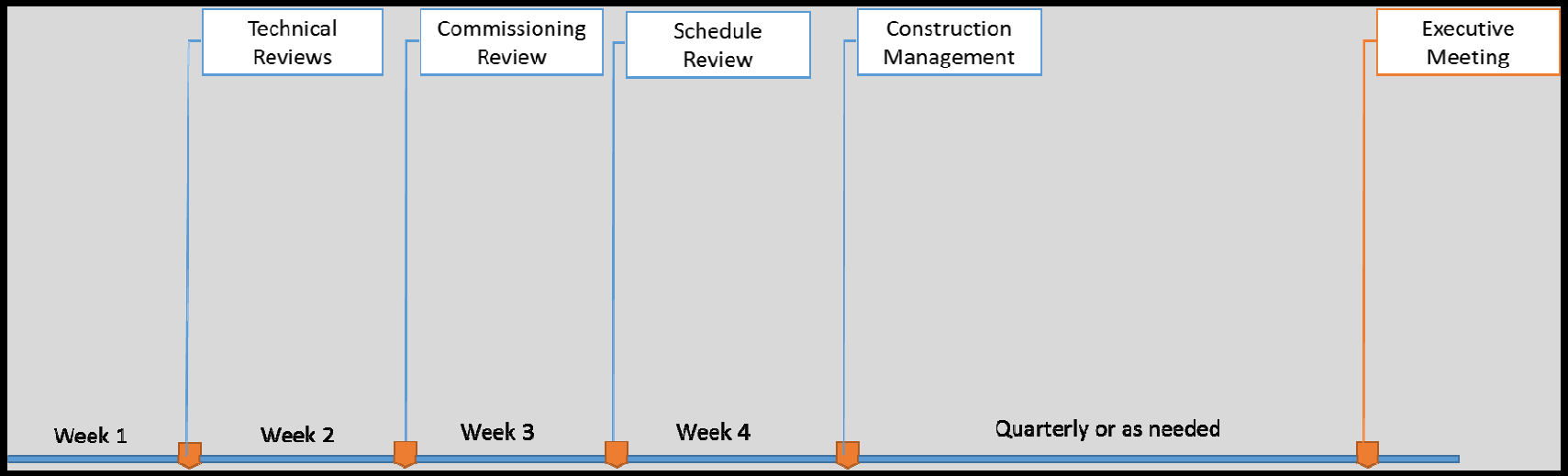
THANK YOU

Hamid Omidvar, AIA

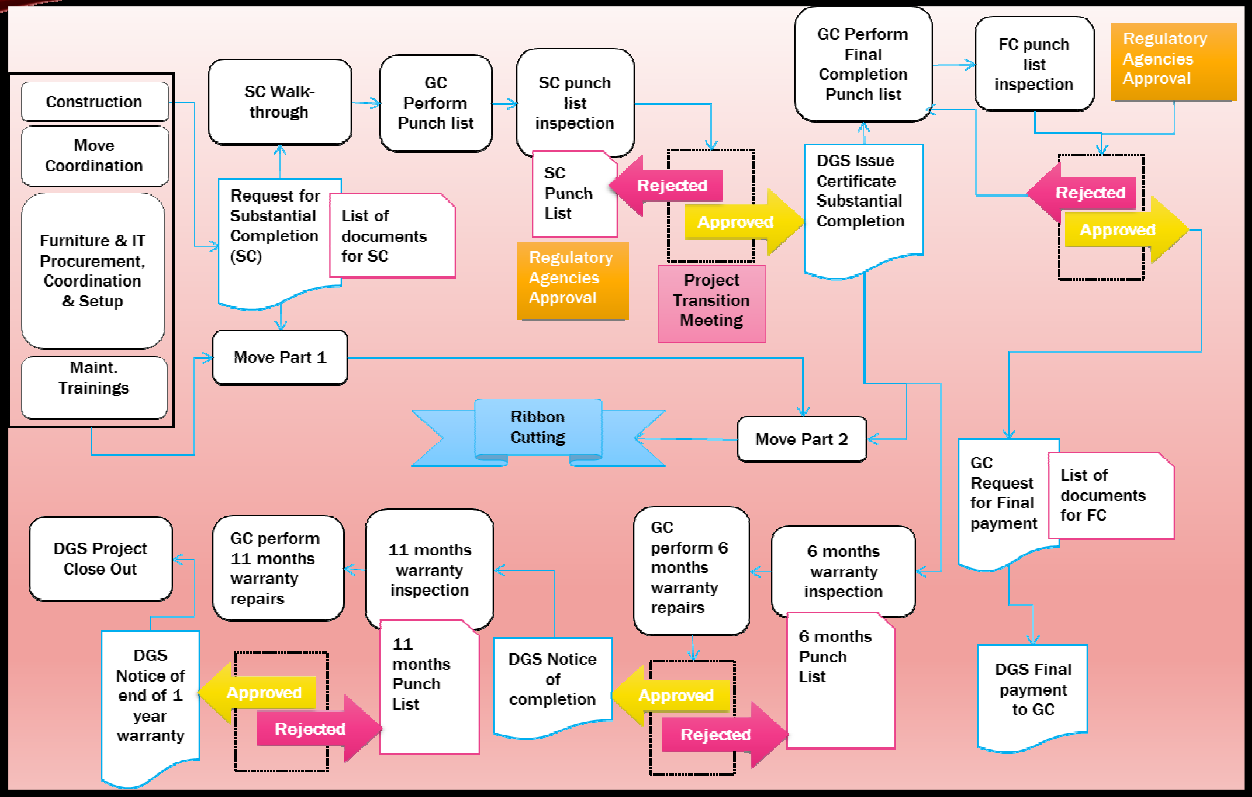
2 NOTICES TO PROCEED



CONSTRUCTION PROGRESS MEETINGS

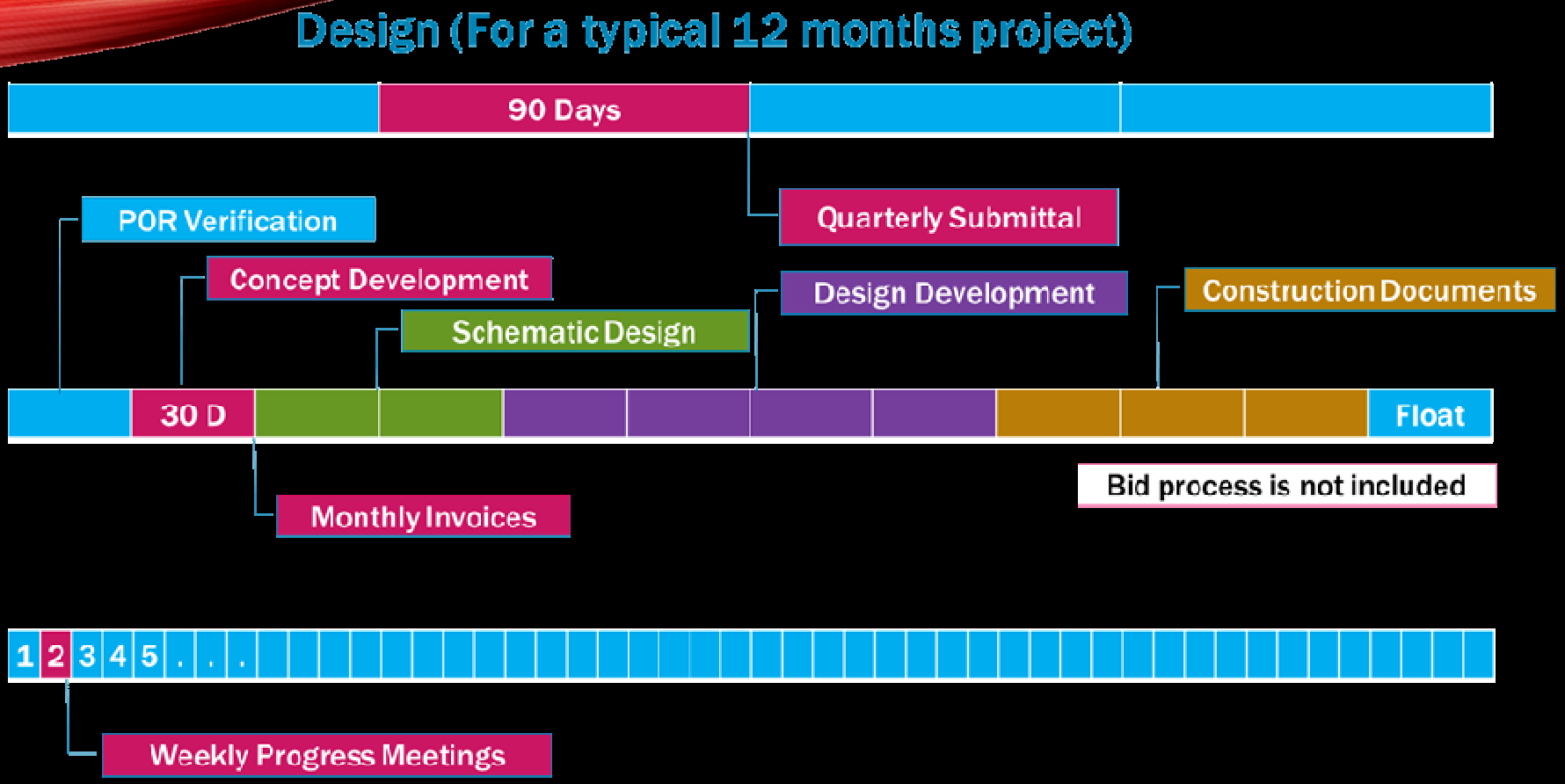


USE OF VARIOUS PROCESS GROUP FLOWCHARTS – QUICK ACCESS

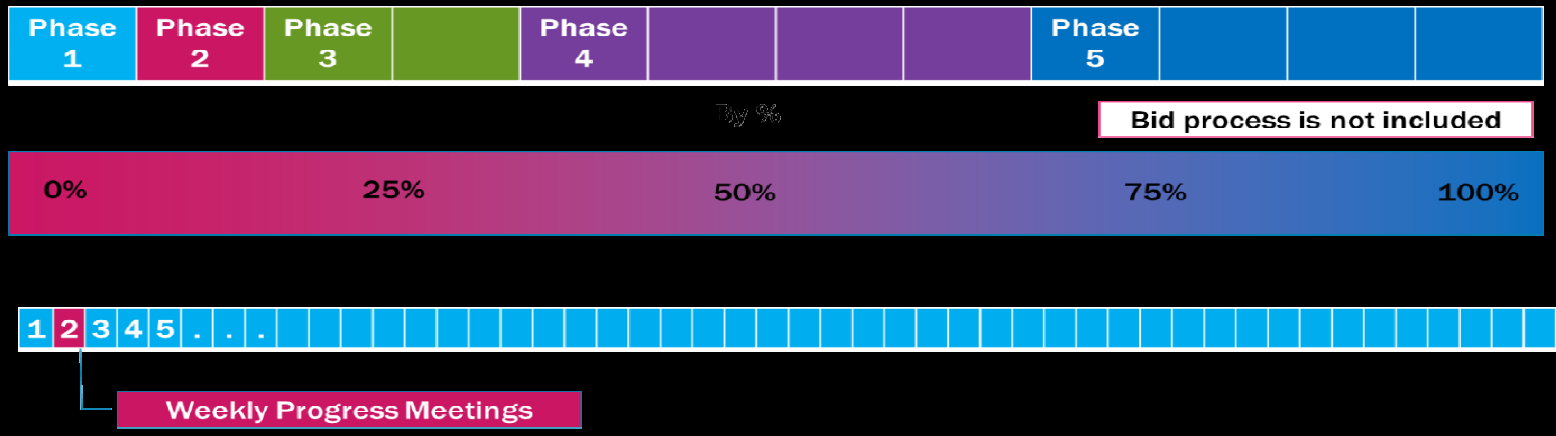


CONSTRUCTION PROCESSES FROM SUBSTANTIAL COMPLETION TO CLOSEOUT

ALTERNATIVE DESIGN DELIVERY METHODS
STANDARD METHOD



ALTERNATIVE DESIGN DELIVERY METHODS
SELECTIVE METHOD



The following schedule criteria applies to this method:

- **Balanced approach - Should not be loaded upfront or at the end,**
- **Should be natural and logical to the design process,**
- **Should be complete and comprehensive,**
- **Invoices must be linked to performance per schedule**
- **Must be approved by the County prior to start of design**