OEA

Thirty Year Plan

Overview Presentation

Executive Managers' Meeting

January 25, 2000

Need for a Plan

- Must balance funding with capital investment needs
- Bonds are issued in long term cycles -- tie up debt service capacity from operations
- Must continuously reinvest to maintain physical plant
- Must plan for long lead time programs/projects (i.e. system capacity and expansion, and fleet replacement)
- Board direction
  - Strategic Plan focus on 30 year reinvestment study
  - Board interest in defining the CIP's "Additional Capacity Enhancement Program"
  - Board adoption of system expansion policy framework

Context of the Effort

- Thirty year timeframe is necessary to identify permanent reinvestment rate
- Need to sharpen financial planning for on-going reinvestment in the physical plant to maintain reliable operations
- Need to identify constraints to continuing patronage growth, and investments needed to overcome them
- Need to integrate system expansion planning with core system planning

Three Related Studies

- *Asset Renovation and Replacement Study*
  - *project lead:* Dale Fousel, Capital Budgets
- *System Capacity Study*
  - *project lead:* Bill Theile, Financial Planning
- *System Expansion Study*
  - *project lead:* Marianne Payne, Planning

- The studies will overlap and interact:
  - i.e. System Capacity and System Expansion will both deal with the effects of extensions and in-fill stations

Questions To Be Addressed

- Asset Renovation and Replacement Study
  - What resources will be necessary to simply maintain and operate the BART system safely and reliably in the future?
- System Capacity Study
  - What investments will be necessary to accommodate continuing patronage growth, while maintaining reliable operations and improving the ability to quickly recover from service disruptions?
- System Expansion Study
  - What is the outlook for system expansion, and how would that affect the core system?

Asset Renovation and Replacement Study

- Purpose
  - Identify permanent reinvestment rate necessary to maintain and operate the system safely and reliably
  - Develop a funding plan and financial strategy to meet these needs

Asset Renovation and Replacement Study

- Scope
  - Identify and quantify all major physical assets
  - Assess the condition of each asset class
  - Develop renovation and/or replacement cycles
  - Develop the costs associated with maintaining the desired reinvestment cycle
  - Develop a funding plan and financial strategy

Asset Renovation and Replacement Study

- Scope:
  - Transit vehicles and major subsystems
    - (control, power, HVAC, wheels, axles, furnishings, etc.)
  - Stations and subsystems
    - (AFC, escalators, lighting, PA systems, parking lots, etc.)
  - Shops, yards, track, power, train control, communications, non-revenue vehicles
  - Business systems and equipment
  - ……..*etc.*

Asset Renovation and Replacement Study

- Approach:
  - Review service performance reports, reliability engineering studies, A/B car findings, inventory usage, and rates of repair
  - Interview a variety of BART staff for operational experience
  - Deconstruct MTC Finance Model reinvestment algorithms
  - Survey academic and industry literature

System Capacity Study

- Purpose:
  - Ensure core system capacity to serve anticipated riders for up to 30 years
  - Inform capital planning, service planning, and engineering decisions, and fare policy discussions

System Capacity Study

- Scope:
  - Determine if additional programs are necessary to fulfill ten year plan
  - Assess capacity of every component of the BART system that could constrain the ability to accommodate or encourage patronage growth:
    - station access, AFC, vertical circulation, platform capacity, line haul capacity, rail vehicles, maintenance capacity, track configuration, etc.
  - Identify measures to overcome limitations
  - Look for unused capacity and opportunities for efficiency improvement

System Capacity Study

- Approach:
  - Heuristic
    - Cycle through critical system components multiple times
    - Generate successively more refined analyses
    - Continually estimate significance of topics to focus study efforts
    - Consider improvements up to a significant portion of BART system cost
  - Incorporate existing knowledge and expertise
    - Engage relevant staff in many different departments
    - Proceed concurrently in several areas
    - Incorporate results of previous and ongoing projects and studies

System Capacity Study

- Systems Analysis:
  - Initially, disaggregate BART system into components
  - Find constraints of individual components
  - Determine critical links for capacity
  - Identify capacity expansion measures for links
  - Synthesize and find interactions between components
  - Examine alternative, broader strategies

JANE PATRON

CRITICAL SYSTEM COMPONENT

TAXI — KISS RIDE
AUTO — KISS RIDE / PARKING
VAN — INTERMODAL
PUBLIC TRANSIT — INTERMODAL
BICYCLE — LOCKER
WALK

STATION

AFC
- TRANS LINK
- FARE NET
- EQUIPMENT
- TICKETS
- PARTS
- TRAINING
- STAFF
- MNGMT

FARE GATES

VERTICLE CIRCULATION

PLATFORM

MAIN LINE

CARS
- A/B REHAB
- MAINT.
- LOGISTICS
- MNGMT

OPERATING PLAN
- DWELLS
- DAS
- LFS
- SEMI AUTO
- SHORT TURNS
- EXPRESS SKIP STOPPING WAYSIDE BREAK
- STAFF
- TRAINING
- MNGMT

TRAIN OPERATIONS
- TRAIN OPERATORS
- T/O SCHEDULE
- DISPATCH

TRAIN CONTROL
- AATC
- BRAKE TECHNOLOGY

TRACTION POWER

TRACK
- CROSS OVERS
- POCKET TRACKS
- WAYSIDE MAINT
- EMERG'Y EXITS VENTILATION

System Expansion Study

- Purpose:
  - Identify and assess system expansion opportunities
  - Develop standards for project advancement criteria
  - Prioritize strategic expansion opportunities
  - Analyze institutional and financial arrangements supporting system expansion

System Expansion Study

- Scope:
  - Extension Staging Policy projects
  - Transit service options, e.g., commuter rail, light rail, quality bus
  - Infill stations
  - Transit-supportive growth and development as they relate to expansion opportunities
  - Integration with transportation services and other facilities

System Expansion Study

- Approach:
  - Interview key BART stakeholders, Board members, and staff
  - Conduct "Blue Ribbon" panel
  - Complete regional/sub-regional scan of expansion opportunities
  - Convene sub-regional workshops to review regional opportunities
  - Assess project implementation opportunities
  - Determine project study priorities
  - Conduct project evaluation studies

Draft

Study Schedules

Asset Renovation & Replacement Study

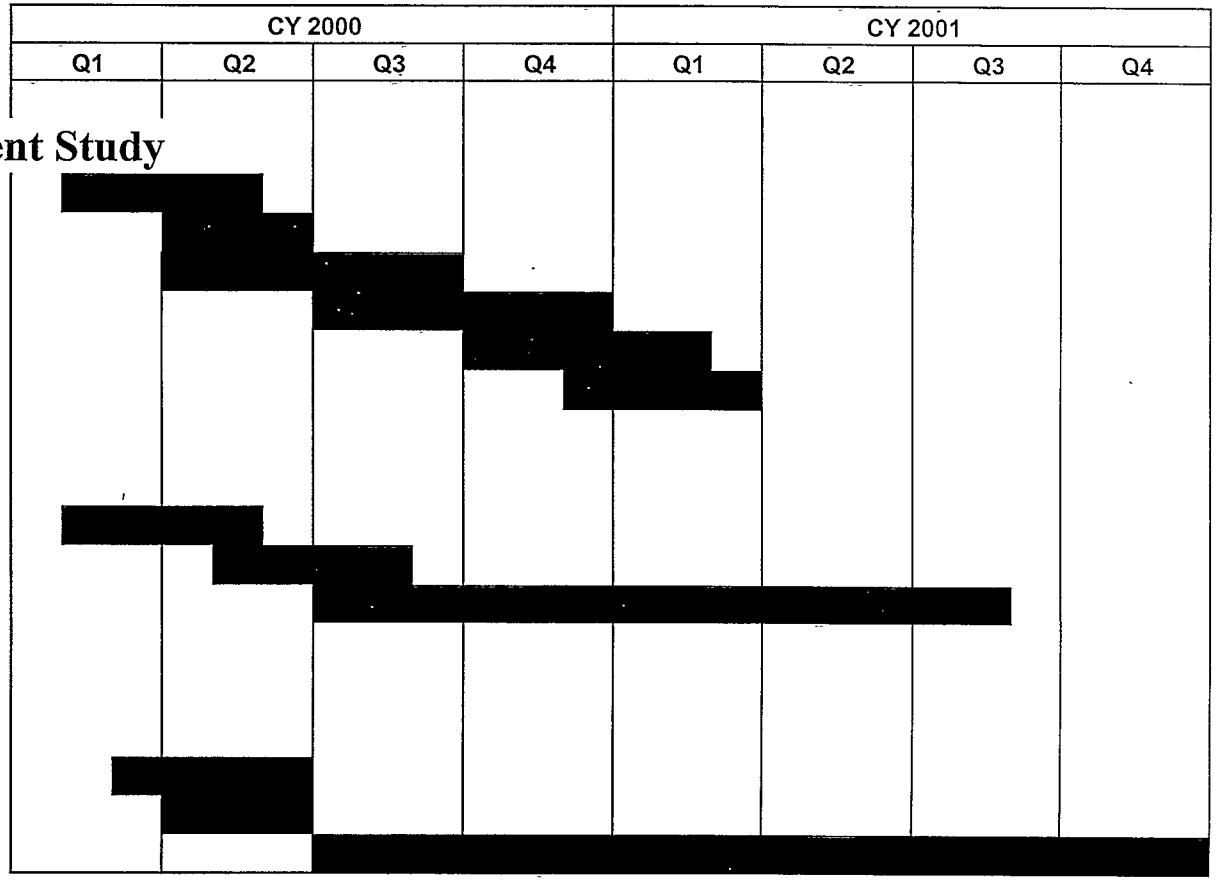
- Develop asset database
- Preliminary assessment of major drivers
- Assess condition of assets
- Develop renovation & replacement cycles
- Develop costs
- Develop financial strategy

System Capacity Study

- Project start-up and preliminary assessment
- First pass study
- In-depth concept evaluation

System Expansion Study

- Phase I strategic opportunities assessment
  - Regional scan (blue ribbon panel)
  - Subregional workshops
- Phase II project evaluations / implementation



Related Issues

- AFC Expansion Study
- BART to San Jose studies
- Oakland Airport Connector studies and preliminary design

DEVELOPMENT OF A SYSTEM EXPANSION POLICY

The Engineering and Operations Committee, at its meeting of November 23, 1999, recommended the following amended motions.

MOTIONS:

1. Adopt the attached Policy Framework for System Expansion (Attachment A).

2. Direct staff to use this framework to:
   - Conduct subregional stakeholder outreach;
   - Complete a detailed policy for Board review and approval to guide the identification, prioritization and phasing of system expansion opportunities.

3. Direct staff to undertake a systemwide strategic expansion opportunities assessment for Board review and approval. This assessment shall include, but not be limited to, existing Extension Staging Policy projects and other expansion projects that may have significant potential. It should identify, where feasible, a range of opportunities (i.e. possible project phasing) that may include interim service options and be completed through local partnership with the communities that will be served.

4. Direct staff to identify and analyze the issues and alternatives the District would need to consider in developing institutional and financial arrangements to support system expansion.

ATTACHMENT A

POLICY FRAMEWORK FOR SYSTEM EXPANSION

GOALS

1. Enhance regional mobility, especially access to jobs.

2. Generate new ridership on a cost-effective basis.

3. Demonstrate a commitment to transit-supportive growth and development.

4. Enhance multi-modal access to the BART system.

5. Develop projects in partnership with communities that will be served.

6. Implement and operate technology-appropriate service.

7. Assure that all projects address the needs of the District's residents.

ATTACHMENT A
(Continued)

POLICY FRAMEWORK FOR SYSTEM EXPANSION

STRATEGIES

1. Partnership

   - Seek partnerships with other transit agencies, local communities and private entities to plan and implement service expansion.

2. Transit Service Options

   - Explore new BART and other transit service options (commuter rail, light rail, quality bus) where appropriate and possibly as interim service.

3. Criteria for Project Advancement

   - For all new expansion projects (new extensions, new in-fill stations) develop criteria that will assure that projects are:

     - Cost effective, i.e., minimize the need for operating subsidies
     - Integrated with other services and facilities in an intermodal regional network
     - Maximize ridership by supporting smart, efficient and desirable growth patterns
     - Can be accommodated without adversely affecting existing system capacity, quality, and financial health
     - Have adequate bus, bicycle and pedestrian feeder service