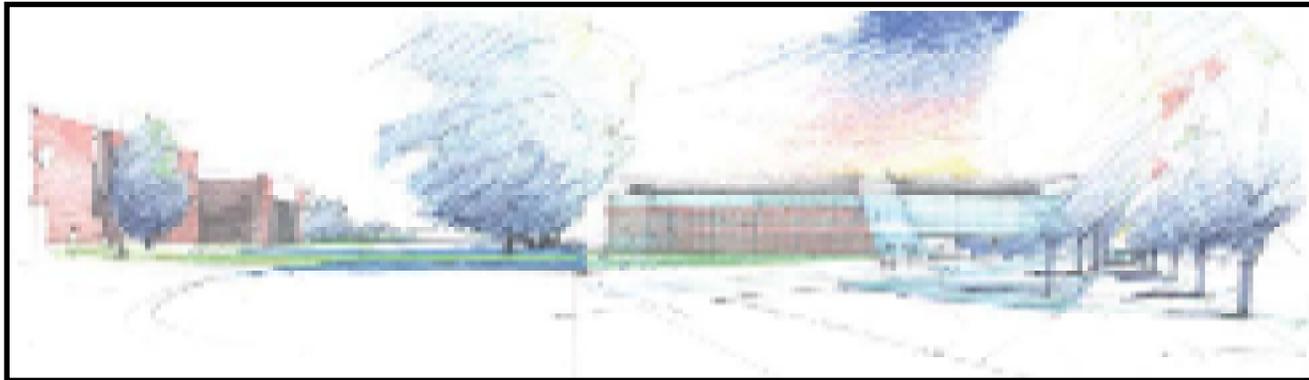
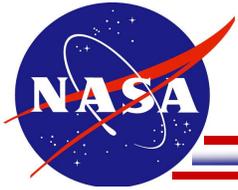


New Town: Langley Research Center's Revitalization Initiative



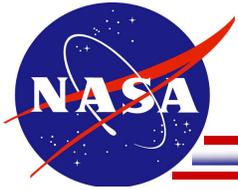
**Project Update for FERP Symposium
May 13, 2009**

George Finelli, Director COD

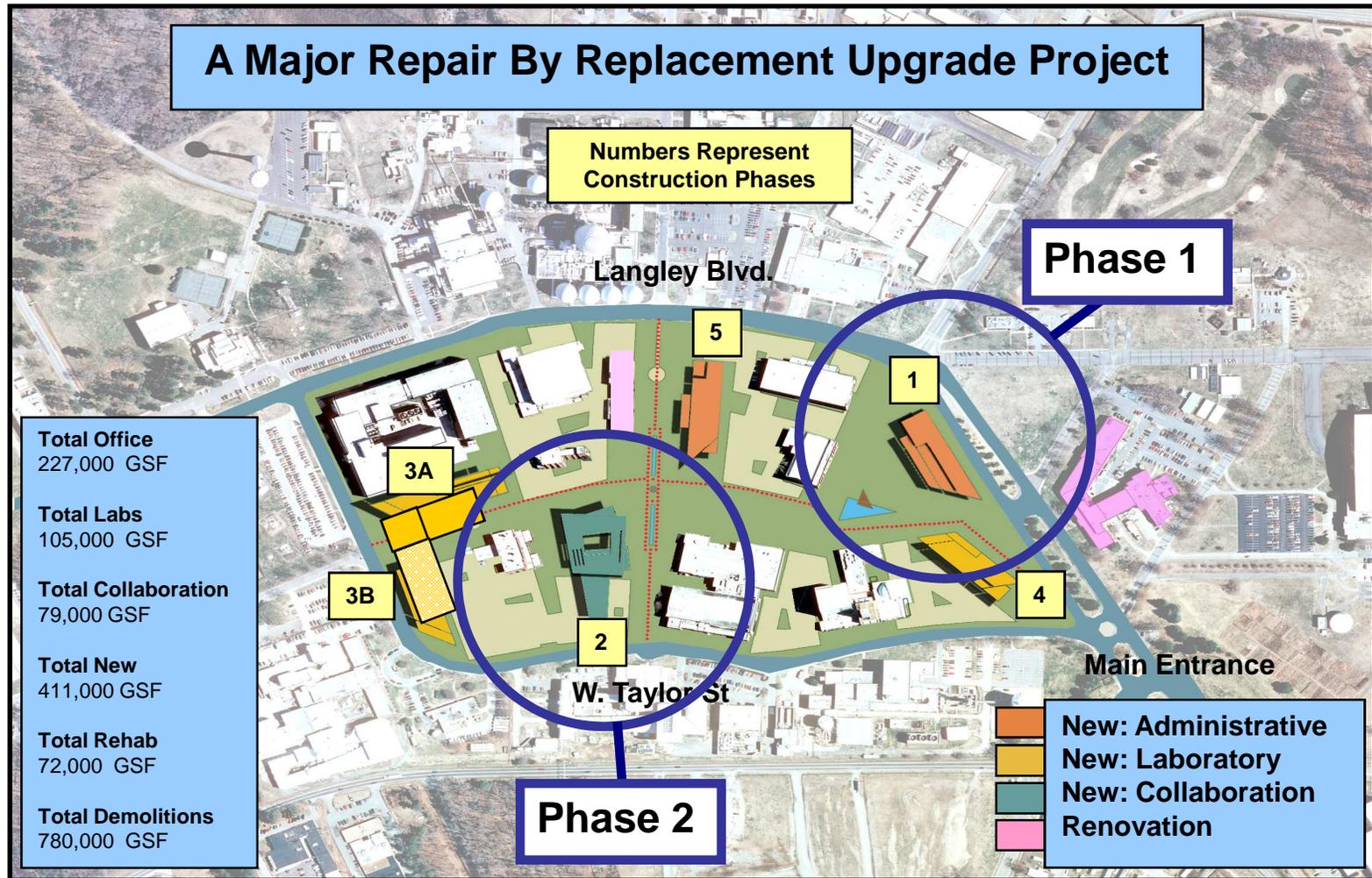


Agenda

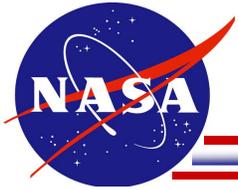
- **Status of Phase 1 Project**
- **Phase 1 Project Construction Animation Video**
- **Plans and Benefits of Phase 2 Project**



Recap of New Town Master Plan

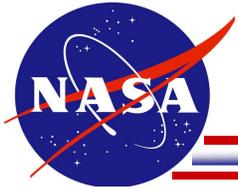


6 New Buildings, 2 Rehabilitated Buildings, 10 Demolished Buildings in Core Area; Personnel Directly Affected: 1200



New Town Phase 1 Status

- **Construction Bids: Six design-build proposals (technical and business) received on 3/12.**
- **Joint NASA/GSA SEB evaluation completed 3/26. Contract award made and winner announced on 4/15: Whiting-Turner from Baltimore, MD with Cooper Carry from Alexandria, VA as architect of record.**
- **Received excellent bid prices (-5% to +12%).**
- **Evaluating optional bid items now.**
- **Planning to issue notice to proceed and hold partnership meeting on May 14th; Kickoff meeting scheduled for May 15th. Contractor will start site mobilization by the end of June.**
- **Ground breaking ceremony expected in July.**

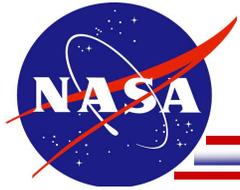


Highly-Qualified Design-Build Contractors

<u>Construction Firm</u>	<u>Location</u>	<u>Lead Design Firm</u>	<u>Location</u>
Clancy & Theys Construction Co.	Newport News, VA	Tymoff + Moss Architects	Norfolk, VA
Coakley Williams Construction Co.	Gaithersburg, MD	Davis, Carter, Scott, Ltd	McLean, VA
Hensel Phelps Construction Co.	Chantilly, VA	Perkins + Will	Washington, DC
Hourigan Construction Co.	Virginia Beach, VA	Parsons Brinkerhoff	Norfolk, VA
Turner Construction Co.	Norfolk, VA	MMM Design Group	Norfolk, VA
Whiting-Turner Contracting Co.	Towson, MD	Cooper Cary	Alexandria, VA
W.M. Jordan Co.	Newport News, VA	Page Southerland Page	Washington, DC

Selected Firm

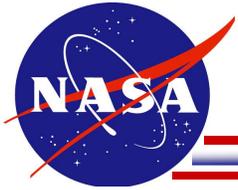
18 Proposals Received for Stage 1 Solicitation



New Town Phase 1 D-B Contractor Team

- **Selected Firm: Whiting-Turner Contracting Co.**
 - **Headquarters: Baltimore, MD**
 - **Satellite Offices: Chesapeake, VA., Richmond, VA, & Chantilly, VA.**
 - **#14 on 2008 ENR Top 400 Contractors**
 - **5A-1 Dun & Bradstreet rating, the only top 15 ENR domestic building constructor with this highest rating, and a bonding capacity of \$4 billion**
-
- **WT Design Partner: Cooper Carry, Inc.**
 - **Headquarters: Atlanta, GA.**
 - **Satellite Office: Alexandria, VA.**
 - **#201 on 2008 ENR Top 400 Design Firms**





Whiting-Turner Construction Projects



**NIH Research Lab
Bethesda, MD**



**Commercial Office Building
Baltimore, MD**



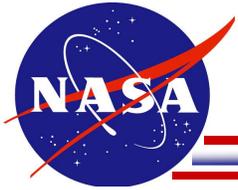
**GSA Federal Office Building
Baltimore, MD**



**Hospital
Virginia Beach, VA**



**Commercial Office Building
Arlington, VA**



Cooper Carry Design Projects



**Office HQ Building
Wilmington, NC**



**FBI Field Office
Jackson, MS**



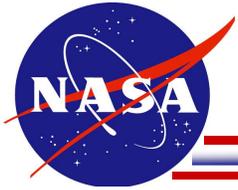
**Hotel & Conference Center
Portsmouth, VA**



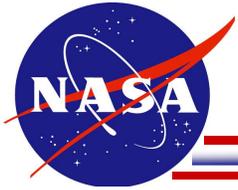
**Commercial Office Building
LaRC - New Town
Raleigh, NC**



**Hotel, Residence & Office Buildings
Greenville, SC**



Status of Phase 1 Project



Final AOB 1 Concept – View From Northwest

- 72,000 GSF
- Three Floors
- 6 Organizations, 260 Occupants
- Striving for LEED Gold Certification





Final AOB 1 Concept - View From Southwest

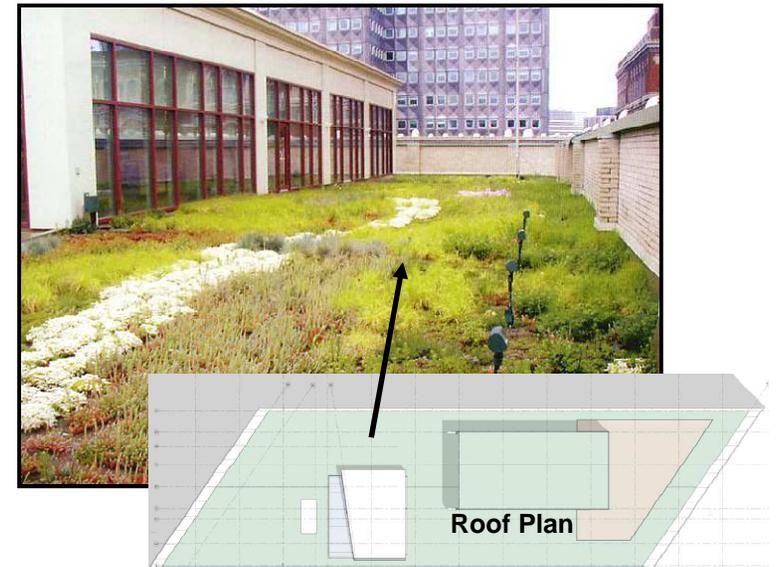




New Town Green Enhancements (1 of 4)

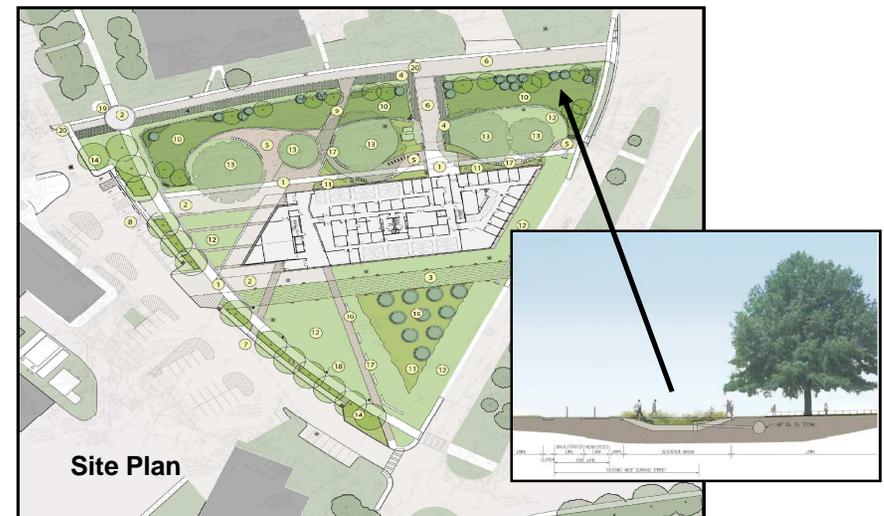
1. Green Roof:

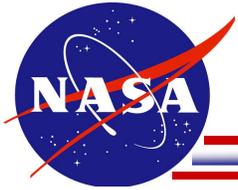
- **Reduces Heat Island Effect**
- **Reduces Heating and A/C Cost**
- **Extends Lifetime of Roof**
- **Reduces Storm Water Runoff**
- **Reduces Noise Transfer**
- **Improves Rooftop View**
- **Gets LEED Points**



2. Water Retention Area:

- **Reduces Storm Water Runoff**
- **Environmentally Friendly**
- **Gets LEED Points**

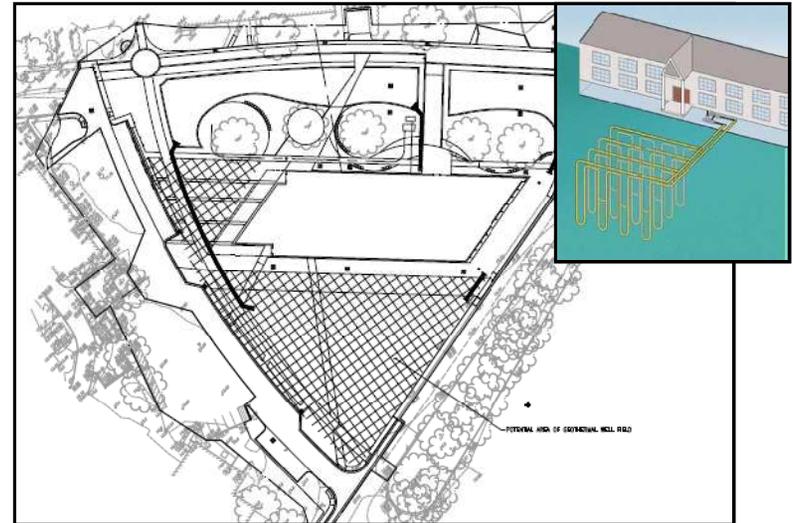




New Town Green Enhancements (2 of 4)

3. Geothermal Ground Source Heating/ Cooling System:

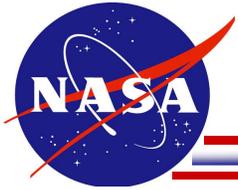
- Reduces Heating and A/C Cost
- Uses Renewable Energy
- Is a Low Maintenance System
- Gets LEED Points



4. Pervious Pavements:

- Reduces Storm Water Runoff
- Gets LEED Points

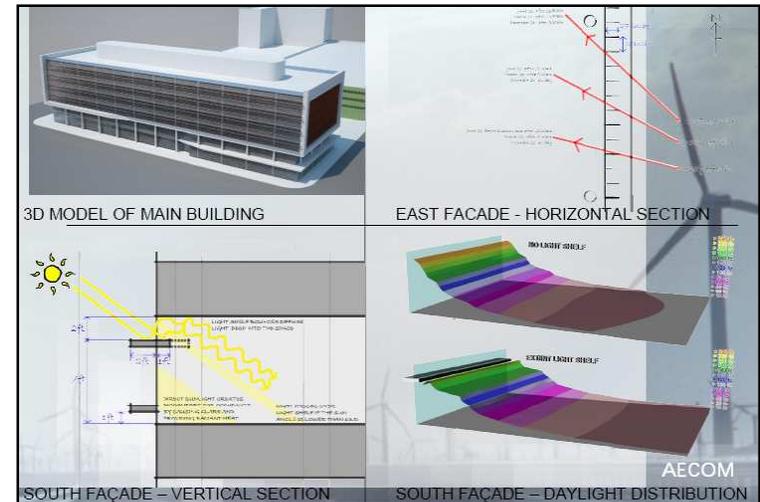




New Town Green Enhancements (3 of 4)

5. Optimization of Daylighting Strategy:

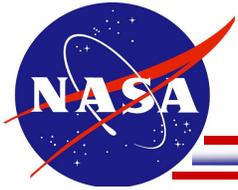
- **Max Use of Natural Lighting**
- **Uses Shading Devices and Light Shelves**
- **Uses Shallow Building Depth and Max Ceiling Height**
- **Uses Strategic Building Orientation**
- **Uses Solar Sensors on Lights**
- **Gets LEED Points**



6. PV Systems:

- **Renewable Energy**
- **PV Array on Penthouse Roof and Building Integrated PV at Lobby Skylight Glazing**
- **Proposed (15% of Consumption)**
- **Gets LEED Points**





New Town Green Enhancements (4 of 4)

7. Underfloor Air Distribution System

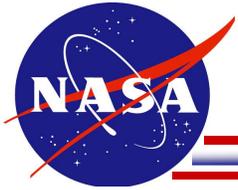
- **Reduces Building Materials**
- **Saves Energy**
- **Provides Healthier Environment**
- **Provides Flexibility at Low Cost**
- **Eliminates Saturation Wiring**
- **Gets LEED Points**



8. Demountable Walls:

- **Provides Flexibility**
- **Can get all the same materials, colors, sound absorption qualities, and other standards as solid built-up walls**



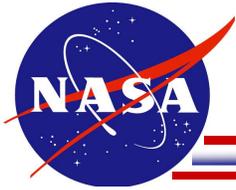


LEED/Green Enhancements

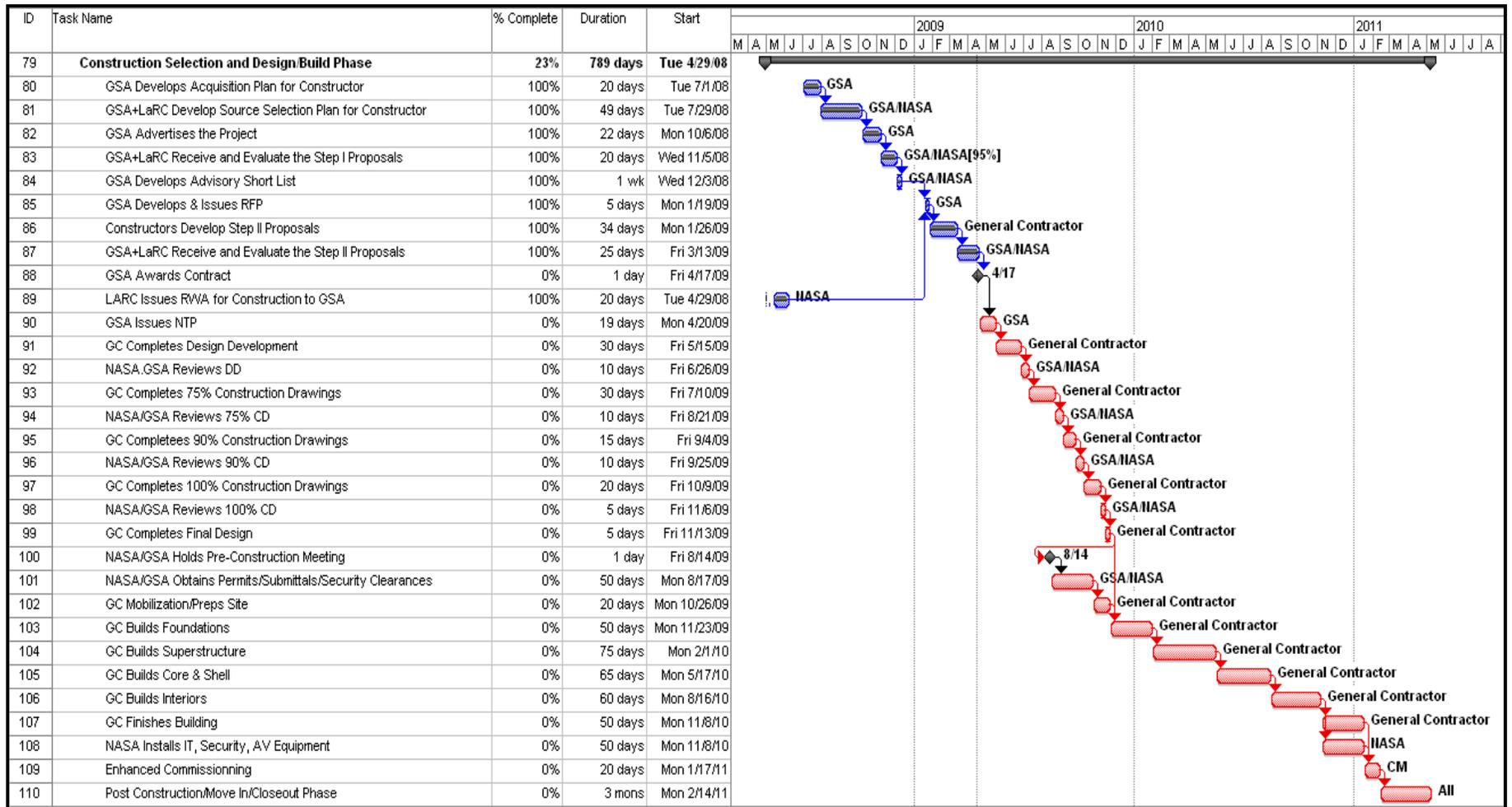
Current LEED Scorecard	<u>Y</u>	<u>M</u>	<u>N</u>
– Innovation and Design Process	5	0	0
– Indoor Environmental Quality	10	4	1
– Materials and Resources	5	2	6
– Energy and Atmosphere	9	8	0
– Water Efficiency	4	0	1
– Sustainable Sites	<u>11</u>	<u>0</u>	<u>3</u>
Total	44	14	11

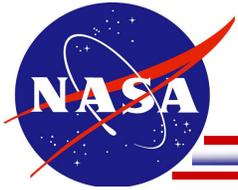
26 – 32 Certified; 33 – 38 Silver; 39 – 51 Gold; 52 – 69 Platinum

Note: May be higher if optional Items purchased

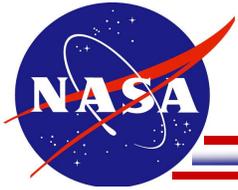


Phase 1 Schedule





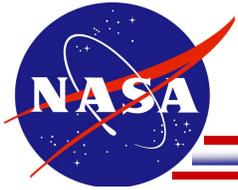
Phase 1 Construction Animation Video



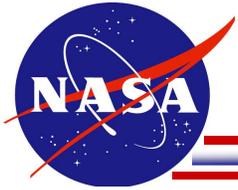
BIM Activities

- **New Town BIM Strategy**
 - **Negotiate with A/E and D-B contractor to use BIM to its full potential**
- **New Town BIM Project Plans include:**
 - **Bridging design documentation**
 - **Construction coordination & phasing**
 - **Streamline design and design reviews**
 - **Energy and LEED sustainability modeling**
 - **Daylight modeling to help achieve required LEED level**
 - **Communication with GSA and NASA during design and construction**
 - **Quality Control**
 - **Interdisciplinary clash detection**
 - **Database modeling of: materials, finishes, electrical circuiting, cable trays and raceways, tags, labels, warranty information, and product data sheets tied to the objects**

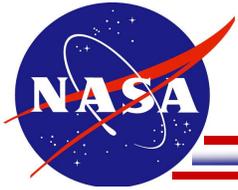




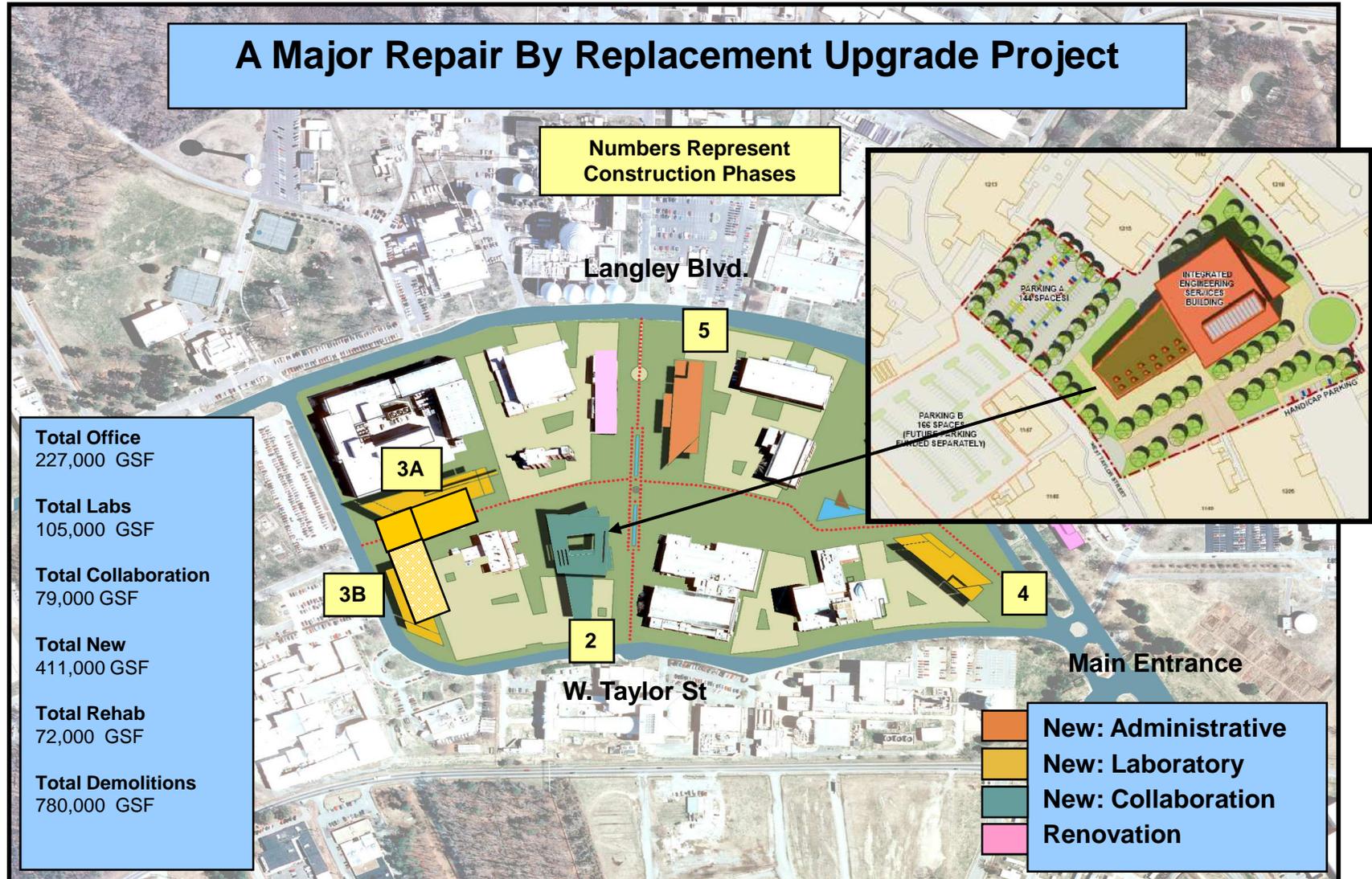
[Shortcut to New Town Phase 1 Construction Animation, Version 2.Ink](#)



Plans and Benefits of Phase 2 Project



Phase 2 - Integrated Engineering Services Building





New Town Phase 2 IESB: LaRC

FY11 Recapitalization Project:

Category Type: RbR

Total Cost: \$ 46.9M

Demolition Included: \$3.2M

O&M Savings: \$4.2M-\$0.6M=\$3.6M/Yr

Project Fit in Master Plan: Allows un-interrupted implementation of LaRC's cornerstone modernization project



Graphic Project Depiction

Requirement/Scope/Justification:

Project Requirement: Integrated Engr Services Bldg - conference, cafeteria, training, media production center

95,000 SF two-story building for 125 people; 176,000 SF will be demolished

Driving Rqmt: Demo of 61-yr old bldgs

Total estimated savings: \$61M (NPV)

ROI: Average payback – 5.7 years

Economic Analysis/Alternative

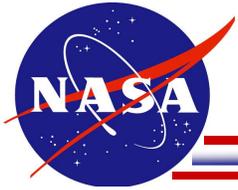
Considered: Status quo vs. New

Recommendation Rationale:

Buildings to be replaced have serious code violations / operational issues

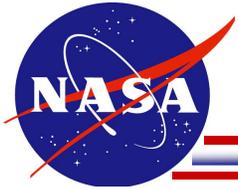
Large decrease in footprint aligns with agency objectives

190% Return on Investment



Phase 2 Benefits (1 of 3)

- **Provides Continuity of Master Plan Improvements:**
 - Phase 1 building will be completed in Spring 2011
 - If Phase 2 funding received FY 2011, construction will continue uninterrupted
- **Results in Favorable Economic Indicators:**
 - Discounted Payback Period is 5.7 years
 - Savings to Investment Ratio is 1.9
- **Provides New and Improved Services:**
 - New 95,000 sq ft facility will provide engineering integration and collaboration, “symposium-ing”, public affairs, training classrooms, cafeteria, and media production services for the center
- **Continues Demolition Program:**
 - Eight buildings will be demolished
 - Demo 176,000 sq ft, resulting in 81,000 sq ft of green space created (+85%)



Phase 2 Benefits (2 of 3)

- **Eliminates Problem Areas in Facilities to be Demolished:**

- **Serious issues exist:**

- **Code violations; lack of sprinkler systems; other fire safety problems (inadequate smoke detection systems, fire alarms, or exists)**
- **Very old HVAC systems**
- **ADA accessibility problems**
- **60-year old buildings w/ hazardous substances (asbestos, PCB ballasts, mercury thermostats, and lead-, chromium-, and cadmium-containing paints and coatings)**

- **All of the buildings are run down, inefficient, and inadequate to perform their intended functions**

- **Major rehabilitation of most of these older buildings is not cost effective.**

- **Demolition and replacement is the best alternative (Repair by Replacement)**

- **Saves Operational Costs:**

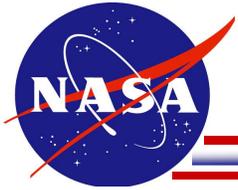
- **Operational impacts of disruptions due to HVAC malfunctions and loss time due to media service functions in four separate buildings alone has been estimated to be \$250K per year**

- **Total operation and maintenance reductions of \$3.6M per year are anticipated for the Phase 2 project**



Phase 2 Benefits (3 of 3)

- **Sustains Remaining Property:**
 - Eight Phase 2 buildings to be demolished have a backlog of repair projects totaling \$38M
- **Reduces NASA's Real Property:**
 - Phase 1 footprint reduction is 76,000 sq ft and Phase 2 is 81,000 sq ft for a total reduction in space of 157,000 sq ft (5% of the center's building inventory).
 - CRV will be reduced by approx. \$50M for the Phase 2 project (After both Phases, 26 buildings greater than 50 years old will have been demolished)
- **Puts "Under-Utilized" Property to Use:**
 - Office efficiency (space per person) is expected to improve by 3% after the Phase 2 project and 9% for Phases 1 and 2 together (6% for Phase 1)
 - The estimated office net sq ft per person for Phase 2 building is 100 NSF/person. (Phase 1 building is 102 NSF/person)
- **Improves Center's Energy Efficiency:**
 - Energy efficiency improves with demo of older buildings and constructing new buildings designed to LEED silver and gold standards
 - The Phase 1 and 2 buildings estimated to use ~28,000 BTU per sq ft
 - This is <15% of center's average consumption for comparable buildings



LEED Strategy

- **Most of the LEED enhancements used in the Phase 1 building will also be used in the Phase 2 building including:**
 - 1) Green roof**
 - 2) Geothermal Ground Source Heating/ Cooling System**
 - 3) Pervious Pavements**
 - 4) Optimization of Daylighting Strategy**
 - 5) PV Systems**
 - 6) Underfloor Air Distribution System**
 - 7) Demountable Walls**