Report to the
University of Washington Board of Regents

# Research Enterprise: strategic planning, risks and trends

***UW Office of the Provost***
***September 2006***

# Research Review

I. The research enterprise at the UW

II. Grant & Contract Awards – history & trends

III. Research facilities – debt and cost exposure

IV. Research financial liability mitigation

# I. The Research Enterprise at the UW

**"Discovery is at the heart of our university"**

**Research is discovery**

**Research enriches education and provides societal benefit**

**Research is a billion dollar a year enterprise at the UW**

**Research is about people, first and foremost**

# Strengths

- **Volume of competitive grant funding**
- **Excellence of our faculty**
- **Marked success in interdisciplinary research and education**
- **Emphasis on professional development for staff, students and faculty**
- **Faculty and staff loyalty**

# Risks

- Reductions in Federal funding
- Escalating costs of lab set-up packages during time of decreased resources
- Infrastructure for research
- Sweeping and rapid changes in proposal submission processes
- Unfunded compliance mandates

# Role of the Office of Research

- **Provide client-oriented services to research**
- **Invest strategically to position us for the future**

# Strategies

- Understand needs and strengths of UW research community
- Streamline and improve research services
- Identify grand challenges and invest in them
  - –existing strength
  - -opportunities for funding
  - -unique position at UW
- Identify barriers to achieving research excellence and develop strategies for overcoming them
- Continue to seek input and remain open to new opportunities

# Examples of Initiatives that Create a Unique Niche

- **Global Health**
  - **Strength in the many critical research areas of importance**
  - **Leadership**
  - **Regional strength (Path, SBRI, etc.)**
  - **Gates Foundation**
- **Project Neptune (NSF Regional Cabled Observatory)**
  - **Unique facility for research and education**
  - **Strength in both basic science and engineering**
  - **Leadership**
  - **Commitment by NSF to fund**
- **Cyberinfrastructure (e-Science)**
  - **Strength in computer science**
  - **Strength in data-driven science**
  - **Leadership**
  - **Microsoft, software industry**

# Federal Funding Picture

- Four-year budget projections relatively flat

- NIH funding extremely tight
  - Flat budget since 2003 (end of doubling)
  - Has not kept up with inflation
  - High number of applications since 2003
    - Numbers increased more than two-fold
  - Success rate down by a third

# II. Grant & Contract Awards – history & trends

## 2005 and 2006 Comparisons

**Preliminary FY06 Awards #s**

| | Amount FY05 | Amount FY06 | Difference |
|---|---|---|---|
| Federal : | $791,618,987 | $769,677,224 | *$21,941,763* (-2.8%) |
| Non-Federal : | $204,237,155 | $220,022,394 | $15,785,239 (+7.7%) |
| Totals: | $995,856,142 | $989,699,618 | *$ 6,156,524* (-0.6%) |

## Sources of Grant and Contract Funds

Green = up
Red = down
Black = within 3%

| Sources of Grant and Contract Funds | FY05 | FY06 | Difference |
|---|---|---|---|
| Dept. of Health and Human Services (DHHS) | $535,994,852 | $508,421,617 | ***$27,573,235*** |
| National Science Foundation (NSF) | $88,419,994 | $86,872,095 | **$1,547,899** |
| Department of Defense (DOD) | $40,208,716 | $41,469,090 | **$1,260,374** |
| Department of Education (DOE) | $45,787,669 | $42,588,363 | ***$3,199,306*** |
| Department of Energy | $17,155,624 | $24,471,818 | **$7,316,194** |
| Other Federal | $64,052,132 | $65,854,240 | **$1,802,108** |
| Non Federal | $204,237,155 | $220,022,394 | **$1,578,524** |
| **Total Grant and Contract Awards** | **$995,856,142** | **$989,699,618** | **$6,156,524** |

# Sources of Non-Federal Funds

Green = up
Red = down
Black = within 3%

| Non-Federal Fund Sources | FY05 | FY06 | Difference |
|---|---|---|---|
| Foundations | $42,885,946 | $43,392,727 | **506,781** |
| State of Washington | $20,655,138 | $29,784,584 | **$9,129,446** |
| Local Government | $5,016,989 | $3,365,097 | ***$1,651,892*** |
| Industry | $35,657,999 | $39,661,309 | **$4,003,310** |
| Other Government (A) | $60,031,990 | $57,738,222 | ***$2,293,768*** |
| Associations & Other (B) | $39,989,093 | $46,080,456 | **$6,091,363** |
| **Total Non-Federal Grant and Contract Awards** | **$204,237,155** | **$220,022,394** | **$15,785,524** |

*(A) Includes awards from non-federal governmental units outside the State of Washington and from other universities and nonprofit agencies.*
*(B) Includes trade associations, various health associations and hospitals.*

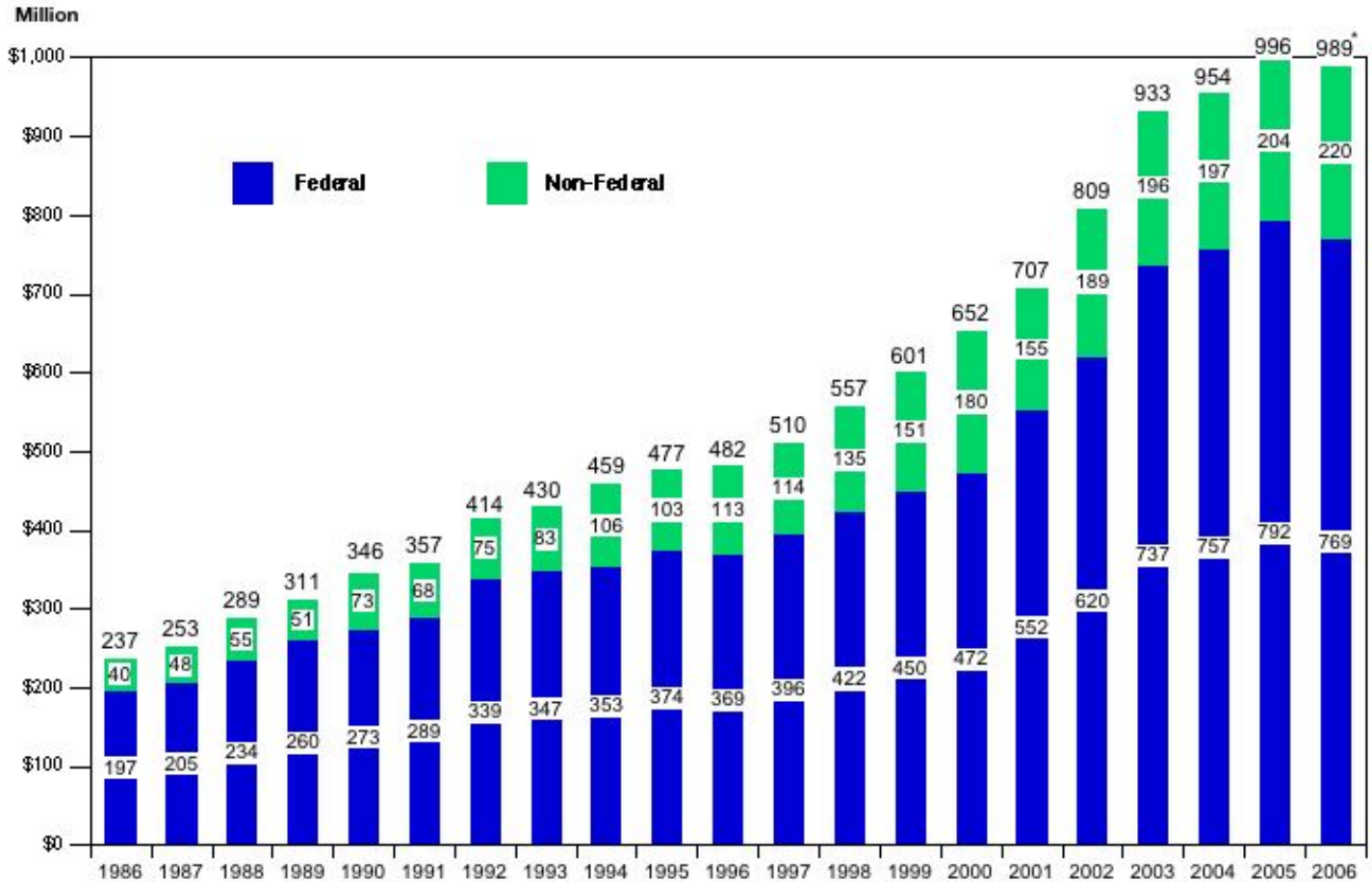
# 05 and 06 Comparisons

Green = up
Red = down
Black = within 3%

Preliminary Data for FY 2006

| College | Total Awarded -FY 2005 | Total Awarded-FY2006 | Difference |
|---|---|---|---|
| Architecture and Urban Planning | 847,063 | 4,003,233 | 3,156,170 |
| Arts and Sciences | 84,438,895 | 85,081,883 | 642,988 |
| Branch Campuses (Bothell) | 1,916,034 | 1,461,636 | *454,398* |
| Branch Campuses (Tacoma) | 388,736 | 600,987 | 212,251 |
| Business Administration | 396,250 | 471,240 | 74,990 |
| Dentistry | 15,679,198 | 16,176,705 | 497,507 |
| Education | 16,662,904 | 12,572,474 | *4,090,430* |
| Engineering | 79,240,429 | 95,392,457 | 16,152,028 |
| Evans School of Public Affairs | 9,326,167 | 3,969,119 | *5,357,048* |
| Forest Resources | 7,181,213 | 8,401,503 | 1,220,290 |
| Graduate School | 4,049,203 | 6,061,061 | 2,011,858 |
| Health Sciences Administration | 41,771,642 | 32,563,569 | *9,208,073* |
| Information School | 1,879,930 | 2,246,662 | 366,732 |
| Law | 2,306,775 | 464,071 | *1,842,704* |
| Medicine | 457,971,693 | 450,922,028 | 7,049,967 |
| Nursing | 17,363,852 | 20,341,691 | 2,977,839 |
| Ocean and Fishery Sciences | 74,364,161 | 79,501,208 | 5,138,047 |
| Office of Research | 16,618,241 | 18,992,459 | 2,374,218 |
| Pharmacy | 15,070,029 | 12,176,423 | *2,893,606* |
| Public Health and Community Medicine | 84,063,576 | 83,211,457 | 852,119 |
| Social Work | 24,282,714 | 19,981,572 | *4,301,142* |
| Undergraduate Education | 141,666 | 117,165 | *24,501* |
| Other Special Programs | 39,895,771 | 34,786,170 | *5,109,601* |

# University of Washington Grant and Contract Award Totals, Fiscal Years 1986–2006




* Preliminary totals for FY 2006.

# UW Award Market Share History

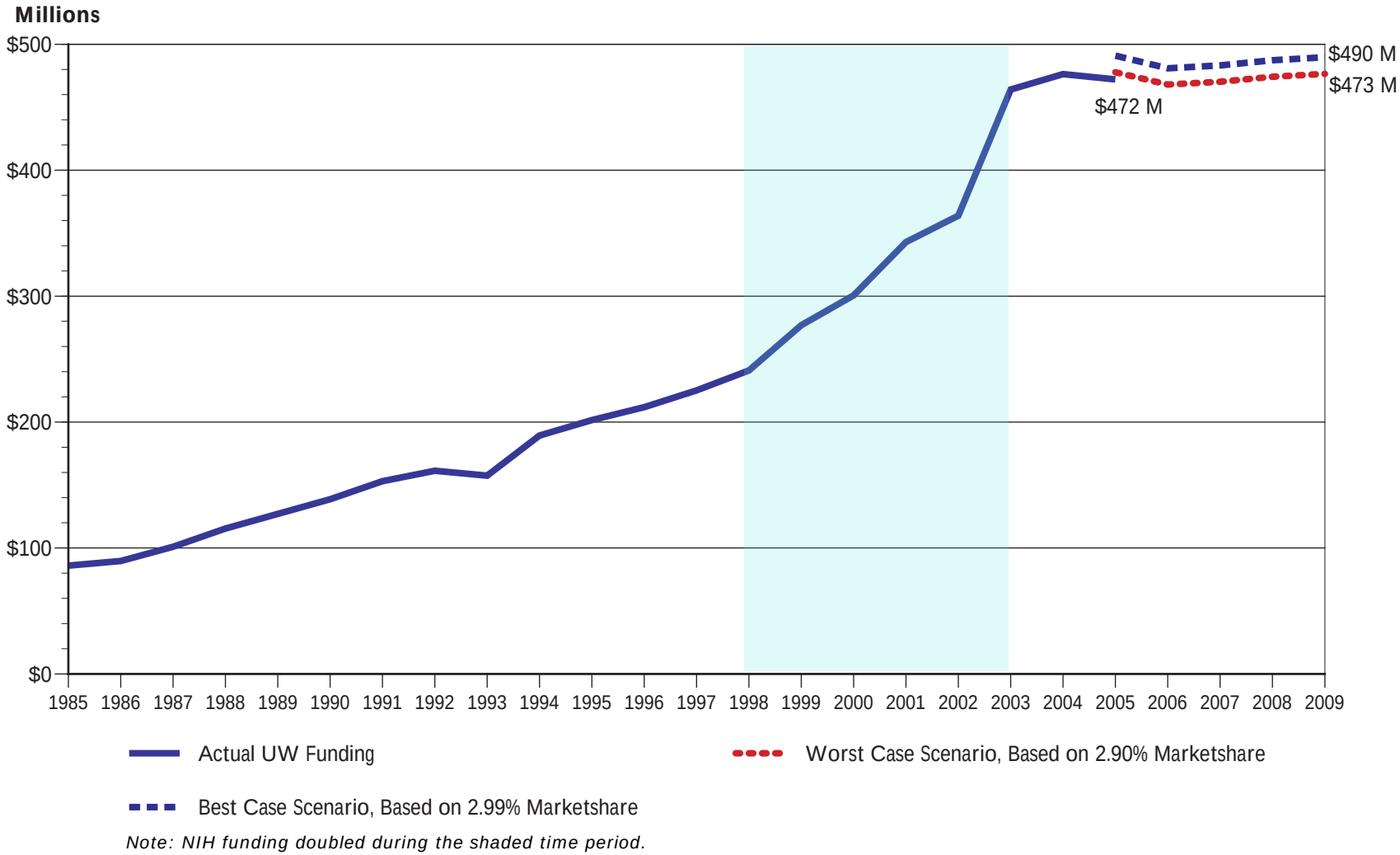
Market share:  % of funding to UW compared to total research funding for the agency

UW market share has been relatively constant for 20 years (2-3% range)

In 2005, UW was 3rd in the nation in NIH market share

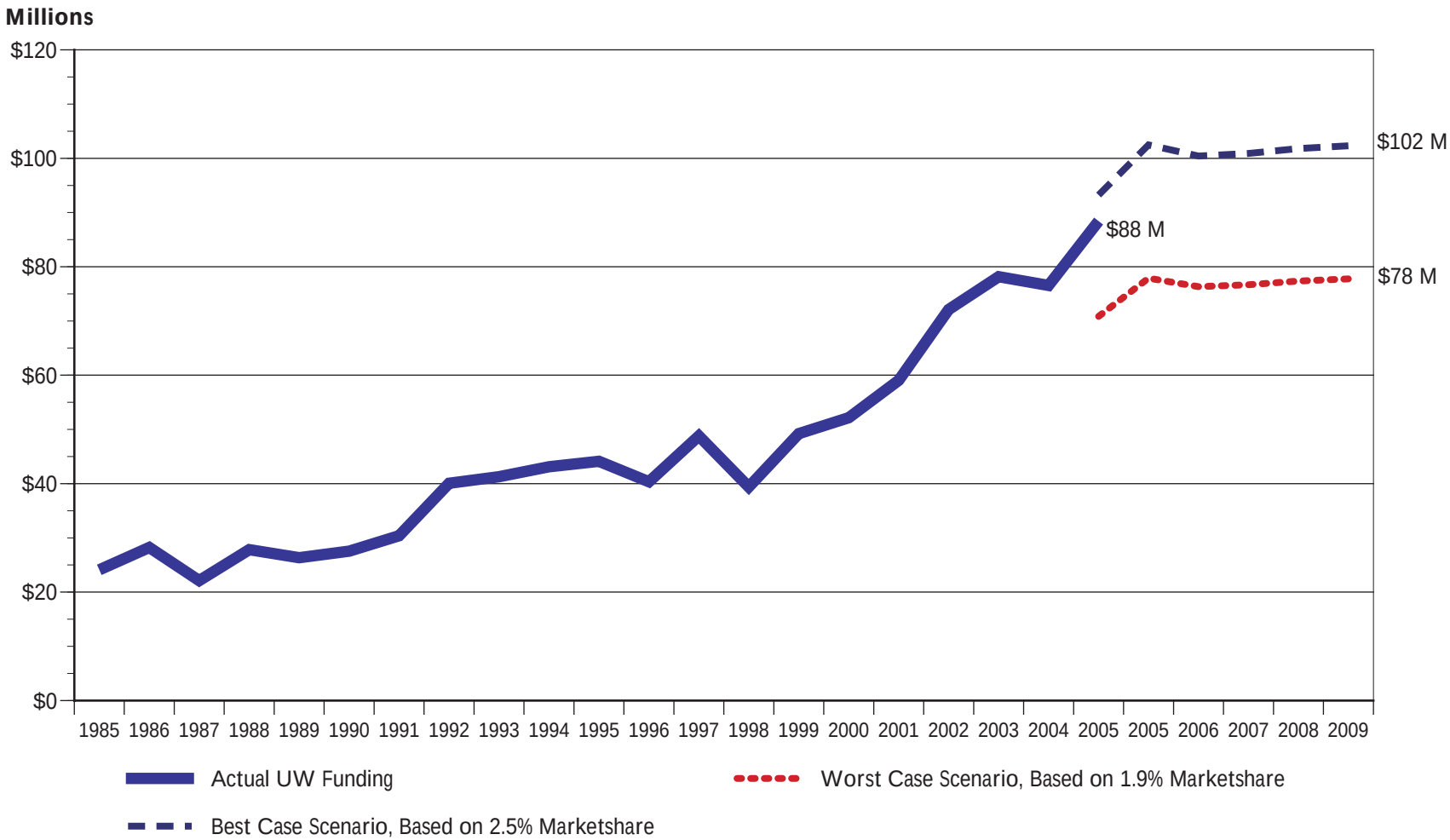
Only a handful of institutions have above a 2% NIH market share

# NIH Funding to the UW FY85-FY05, Funding Projections for FY06-FY09




*Note: NIH funding doubled during the shaded time period.*

# NSF Funding to the UW FY85-FY05, Funding Projections for FY06-FY09



# Threats and Mitigating Actions

- **Threats**
  - **Junior faculty**
  - **High risk / high payoff research**

- **Actions**
  - **Provide "bridge" funding from Provost**
    - **most promising junior faculty**
    - **most vulnerable research**
  - **Provide assistance to maximize proposal success of junior faculty**
    - **Workshops on grant success (college / school)**
    - **Mentoring**

# Other Trends

- **Past emphasis on centers**
  - **$1-5M/yr ($5-25M awards)**
  - **Involve multiple research groups**
  - **Often involve major facilities**
  - **UW has dozens of these**

- **Shift to very large awards ($20-25M/yr)**
  - **$100M to AIDS research**
  - **$125M Dept of Energy Bioenergy Centers**
  - **$120M Neptune Regional Cabled Observatory**

**Require project management expertise**

**Developing a plan to provide central coordination, support, and training**

# Award Status Summary

- **UW Research is out of our recent growth phase (doubled in 10 years)**
- **Predictions are a roughly steady mode for the next 3-5 years**
- **Pro-active measures are needed now to position ourselves for the future**

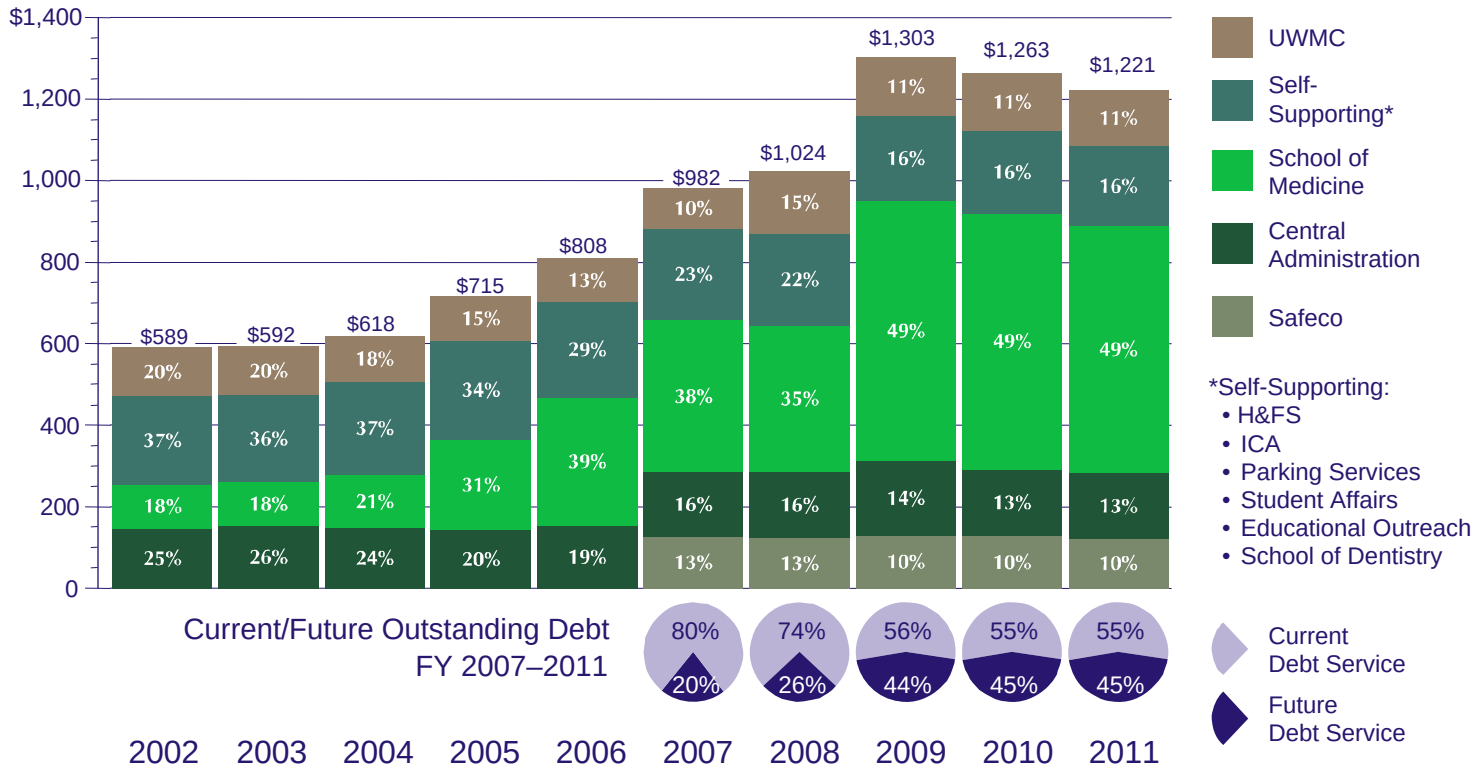
# III. Research Facilities – Debt and Cost Exposure

- **UW Total Outstanding Debt was $808 million last year including Research Outstanding Debt of $317 million**

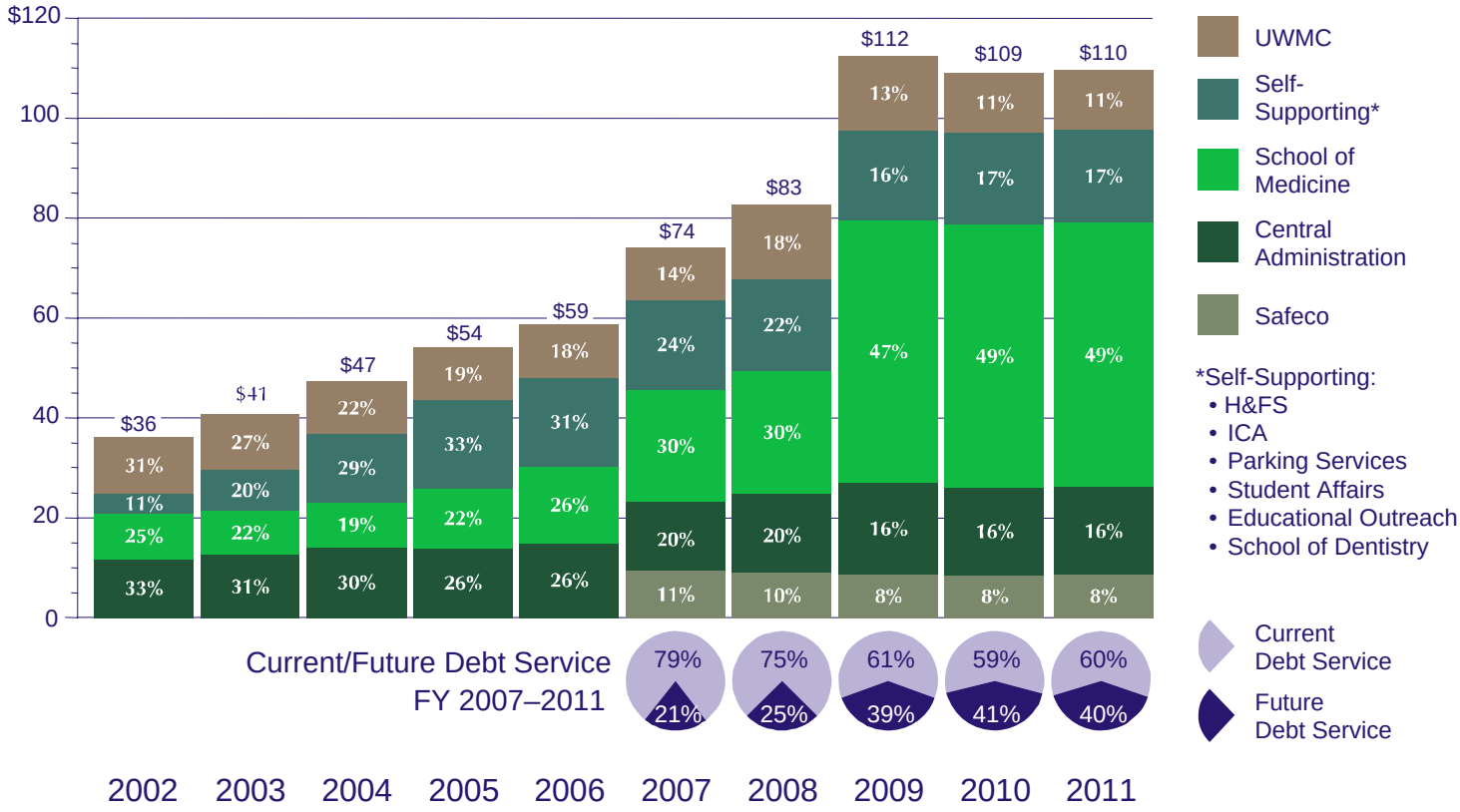
- **Current commitments for both outstanding debt and debt service should allow the UW to maintain our existing bond ratings**

- **SLU III, a subject of current analysis, represents a significant potential addition to research and total debt**

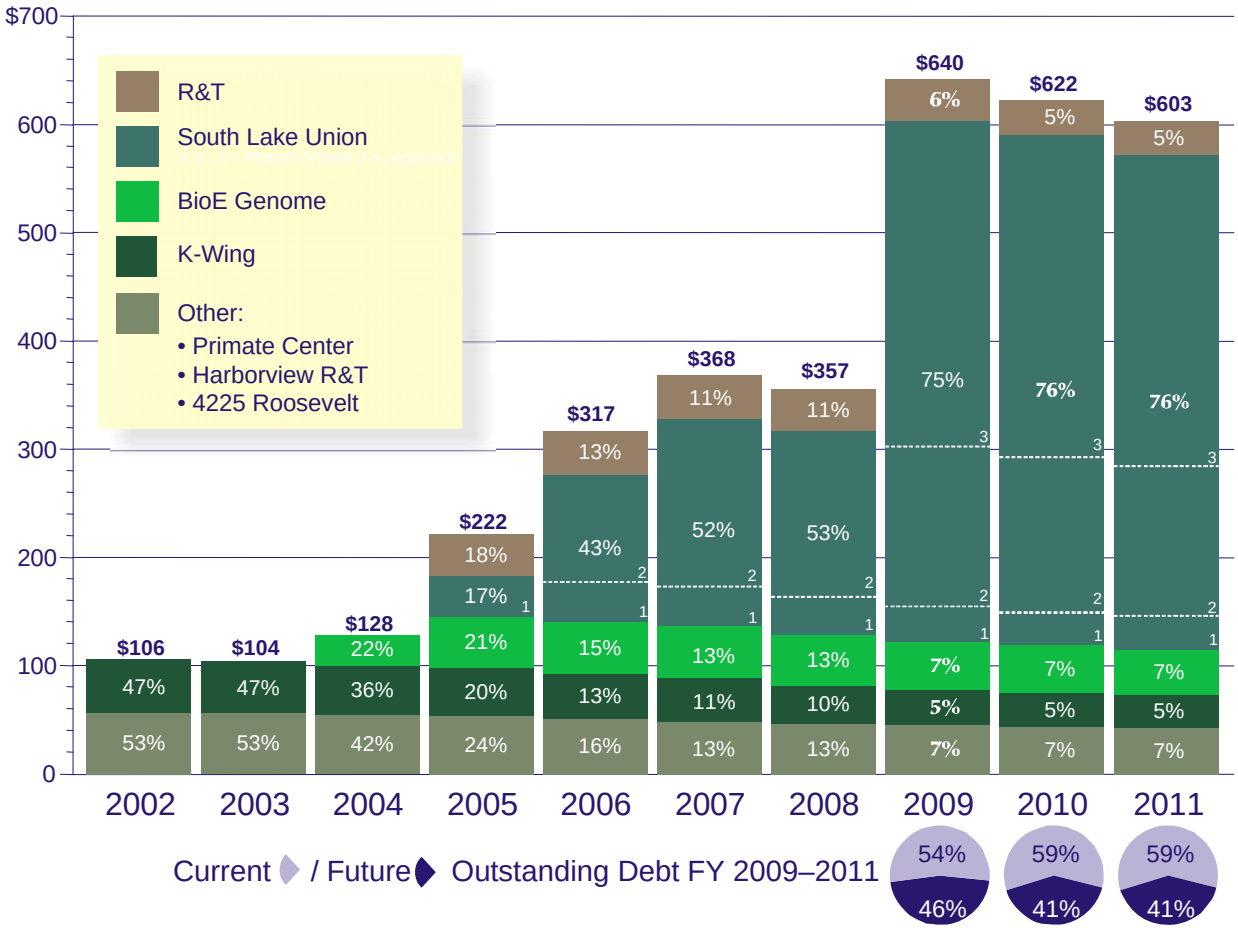
# Total UW Outstanding Debt 2002–2011



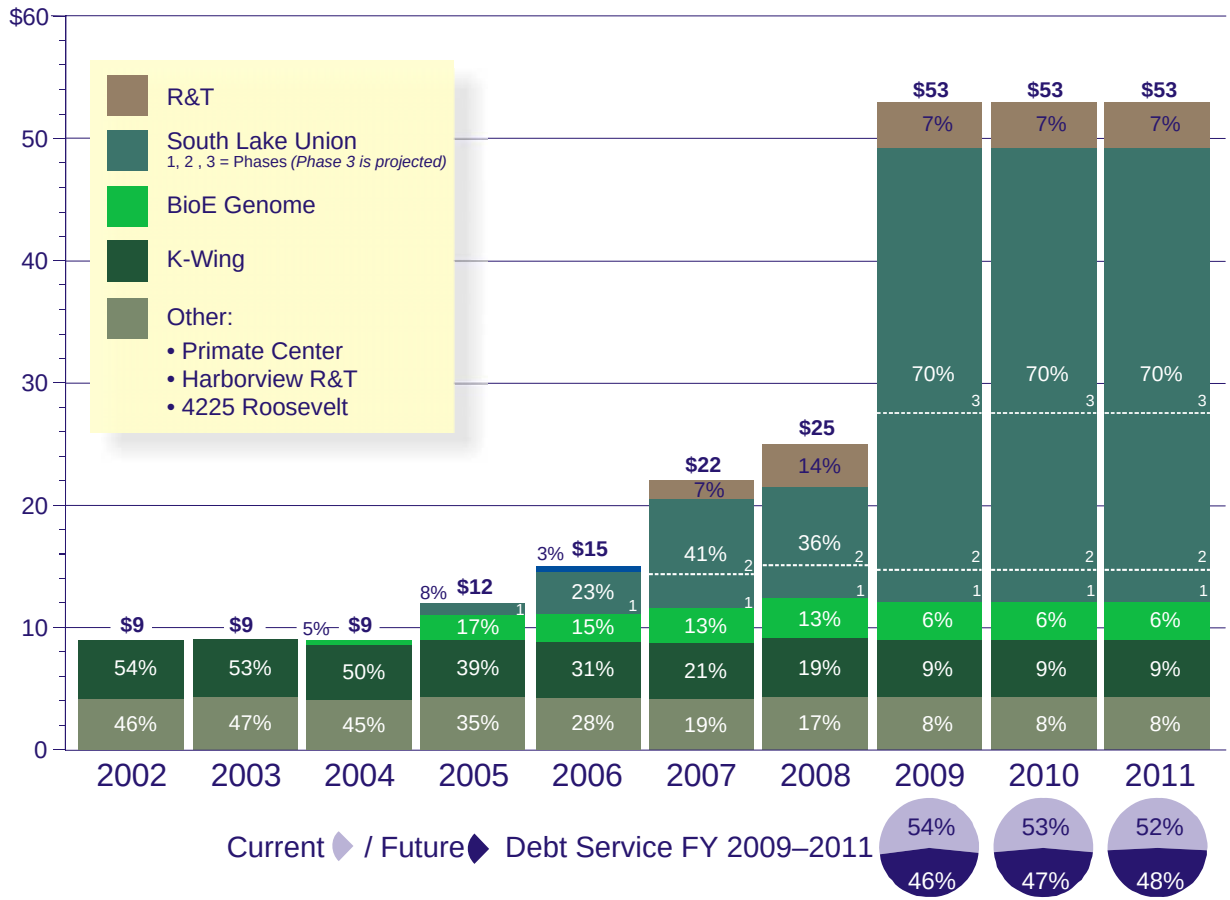
# Total UW Debt Service FY 2002–2011



# Outstanding Debt Payable from Indirect Cost
# FY 2002–2011



# Debt Service Payable from Indirect Cost
# FY 2002–2011



# Research facilities – Assignment Status

**Status of assignment of space in new research buildings:**

| | Assignable | Assigned |
|---|---|---|
| • **Brotman Building** | **65,506 asf** | **65,506 asf (100%)** |
| • **Foege/BioE** | **154,919 asf** | **154,919 asf (100%)** |
| • **Research & Tech** | **93,792 asf** | **53,362 asf ( 57%)** |
| • **SLU II** | **193,000 asf** | **74,000 asf ( 38%)** |

# Research Facilities Cost Responsibility

- **Net annual University financial responsibility for research buildings since approval to proceed:**

| | As Approved | Current Estimate |
|---|---|---|
| – Brotman Building | $0.6 million | $1.3 million |
| – Foege / BioE | $1.2 million | $0.0 million |
| – Research & Tech | $0.2 million | $0.6 million |
| – SLU II | $3.6 million | $4.3 million |
| • Total UW responsibility | $5.6 million | $6.2 million |

- **See summary for detail of variances**

# Proforma vs. Actual UW Research Buildings: South Lake Union

| Brotman Building – South Lake Union Phase 1 (Building 100% committed) | | |
|---|---|---|
| | **Proforma** | **Actual / Current Forecast** |
| **Project Cost (excluding land)** | **$47 million** | **$47 million** |
| **Annual Growth Rate – Direct Costs** | **3%** | **0%** |
| **Facilities Indirect Cost Rate** | **35.6%** | **40%** |
| **Interest Rate on Debt** | **5.5%** | **4.8%** |
| **Annual State Support for O&M** | **$0** | **$0** |
| **Annual Occupancy Cost: (debt service, operations and maintenance, ground rent, and reserves) 10 year average from 2006, first year of full occupancy** | **$6.4 million** | **$6.0 million** |
| **Annual Facilities ICR: 10 year average** | **$5.8 million** | **$4.7 million** |
| **Institutional ICR and/or SOM funds required** | **$600K** | **$1.3 million** |

| South Lake Union Phase 2 (Building not yet committed, proposals being reviewed) | | |
|---|---|---|
| | **Proforma** | **Actual / Current Forecast** |
| **Project Cost (research portion only)** | **$133 million** | **$140.5 million** |
| **Growth Rate – Direct Costs** | **3%** | **0%** |
| **Facilities Indirect Cost Rate** | **35.6%** | **40%** |
| **Interest Rate on Debt (Phase 2, first tranche only)** | **5.5%** | **4.8%** |
| **State Support for O&M** | **$0** | **$2.4 million** |
| **Total annual Occupancy Cost** net of State support**: (debt service plus operations and maintenance plus ground rent) 10 year average from 2009, first year of full occupancy** | **$14.9 million** | **$12.7 million (estimated, building not complete and all debt not issued)** |
| **Total Facilities ICR: 10 year average** | **$11.3 million** | **$8.4 million** |
| **Institutional ICR and/or SOM funds required** | **$3.6 million** | **$4.3 million** |

# Proforma vs. Actual UW Research Buildings: Main Campus

| Foege / Bioengineering Buildings | | |
|---|---|---|
| | Proforma | Actual / Current Forecast |
| Project Cost | $150 million | $150 million |
| Annual Growth Rate – Direct Costs | 3% | 0% |
| Facilities Indirect cost Rate | 25.6% | 29.5% |
| Interest Rate on Debt – Building was partially funded with State bonds and partially funded with UW issued variable rate bonds | 5.5% | 4% (weighted average of variable rate bonds and state issued bonds) |
| Annual State Support for O&M | $0 | $2 million |
| Annual Occupancy Cost net of State support: (debt service, operations and maintenance, and reserves) 10 year average from 2007, first year of full occupancy | $7.2 million | $4.7 million |
| Annual Facilities ICR: 10 year average | $6 million | $5 million |
| Annual Institutional ICR: 10 year average | $1.2 million | None |

| Research & Technology Building | | |
|---|---|---|
| | Proforma | Actual / Current Forecast |
| Project Cost | $48.7 million | $48.7 million |
| Growth Rate – Direct Costs | 3% | 0% |
| Facilities Indirect cost Rate | 25.6% | 29.5% |
| Interest Rate on Debt (all variable rate with swap) | 3.8% | 3.3% |
| State Support for O&M | $0 | $0 |
| Total annual Occupancy Cost: (debt service, operations and maintenance, and reserves) 10 year average from 2008 first full year of occupancy | $6.1 million | $5.9 million |
| Total Facilities ICR: 10 year average | $5.9 million | $5.3 million |
| Annual Institutional ICR: 10 year average | $200K | $600K |

# Research Facilities Cost Exposure

- **Annual facilities costs that has yet to be included in UW on-going budgets:**
  - **Foege/BioE & Research & Tech: $2.9 million per year (relative budget reference: UW Core Education budget of $657 million per year and Indirect Cost Recovery Budget of $189 million per year)**
  - **SLU II: $3-$3.5 million per year (relative reference is UW School of Medicine Core Education Budget of $44 million per year and Research Cost Recovery Budget of $33 million per year)**

# IV. Research Financial Liability Mitigation

- **Via research support strategies, increase growth rate of UW awards – see sensitivity to growth**
- **Request additional operations and maintenance support from the State – SLU II, Foege, R&T**
- **Consolidate leases (those remaining after SLU II and Safeco assignments – see summary)**
- **Lease to allowed private or non-profit use – see summary**
- **Allocate Core Education or Restricted Budget**
- **Refinance R&T debt and rent to third party**

# Mitigation Strategy: Increase Market Share

**Sensitivity Analysis**

***Every 1% increase in award growth (direct cost) adds:***

**For SLU Phases 1&2**

**$2.4 million in direct cost**
**$812K million impact on bottom line (facilities ICR less occupancy costs)**

**For Foege / Bioengineering Buildings**

**$1.1 million in direct cost**
**$285K impact on bottom line (facilities ICR less occupancy costs)**

**For R&T Building**

**$1.4 million in direct cost**
**$350K impact on bottom line (facilities ICR less occupancy costs)**

NOTE: Based on 10 year average annual with current assumptions

## Potential Lease Consolidation

- **416,000 rentable sq ft of space is leased in the Seattle market that is eligible for relocation. ***
- **301,000 rentable sq ft of leased space is planned for Safeco.**
- **115,000 rentable sq ft of additional office and specialized lab space is available for consolidation to UW owned facilities.**



*Excludes location dependent leases, non-profit 63/20's, Rosen, or intended for SLU.

# Private Use Limits by Facility

| Issue / Facility | Total Allowable Private Use (as a % of total square feet) | Equity contribution | First call date |
|---|---|---|---|
| WEDFA Bonds **– Brotman Building ($38 million in bonds)** | **16%** | **$5 million** | **June 2014** |
| WEDFA Bonds **– South Lake Union Phase 2 ($99 million in bonds issued, $60 million to be issued in late 2006)** | **13%** | **$14.6 million (expected)** | **December 2015 (First tranche)** |
| UW GRB Bonds and State GO bonds **- Foege Building, Bioengineering Building, and Research and Technology Building ($88 million in bonds)** | **60%** | **$112 million (gifts, grants, and UW funds)** | **Any date** |

**Considerations**

-Private use is measured over the entire life of the bonds.

-Percent of private use applies to total bond issue, not individual building

-Equity contribution increases the amount of allowable private use.

-For 501c3 bonds, non-profit use not considered private use.

-Variable rate bonds can be refunded at any time.

-State issued GO bonds don't present a private use problem due to large par value of State debt.

# Summary: Research Costs and Mitigation

- **Given our current commitments to new research facilities, the costs of that have not yet been built into budgets are approximately $6 million per year.**

- **This level of exposure certainly warrants continued management diligence over the next 3-4 years until the steady state has been achieved.**

- **Given the level of this exposure relative to the overall UW and UWSOM budgets and the mitigation strategies, this financial risk is manageable over time without unacceptable programmatic impacts.**