

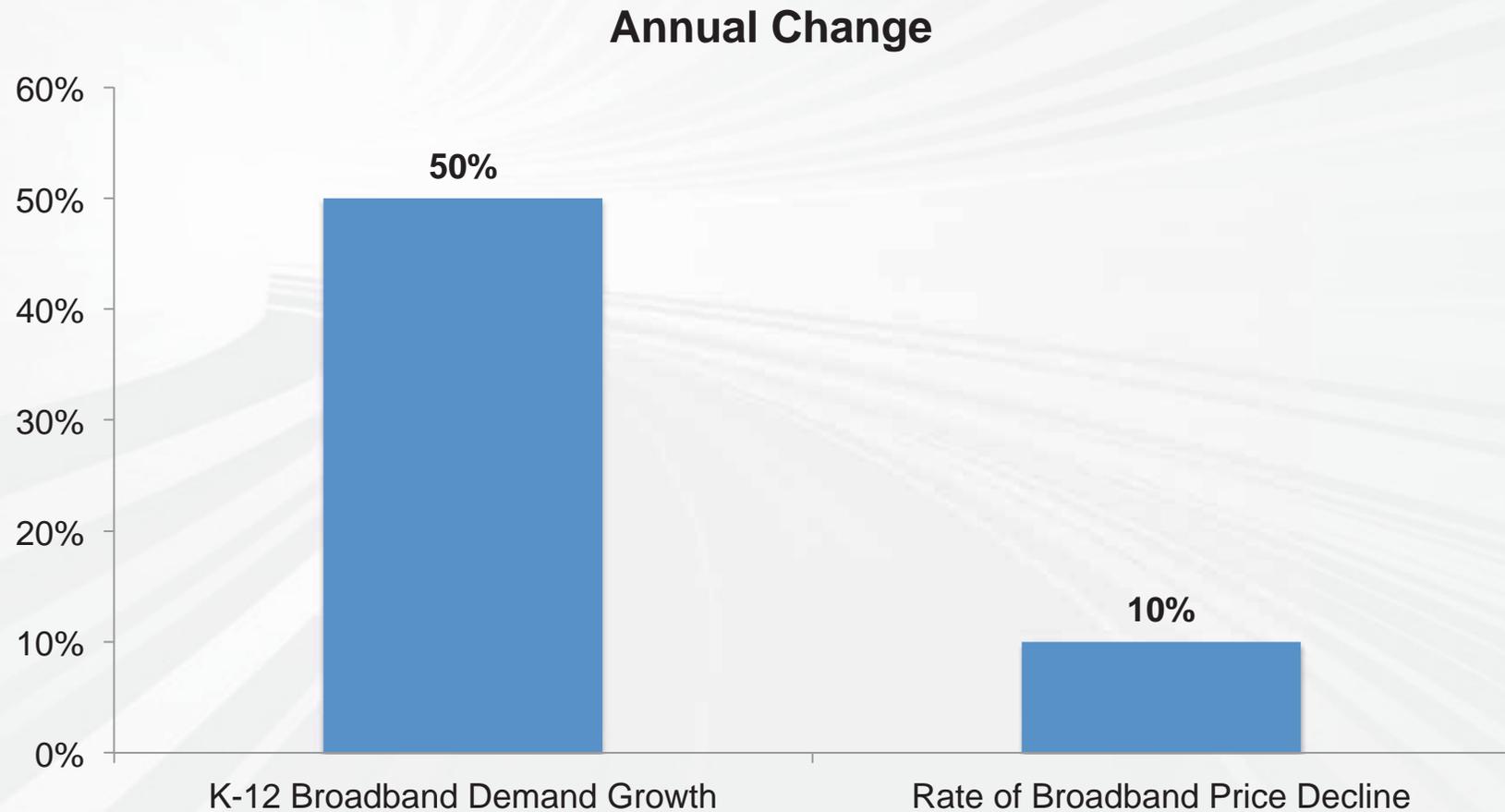


Education
SUPERHIGHWAY

E-rate Connectivity Cost Model and Policy Scenarios

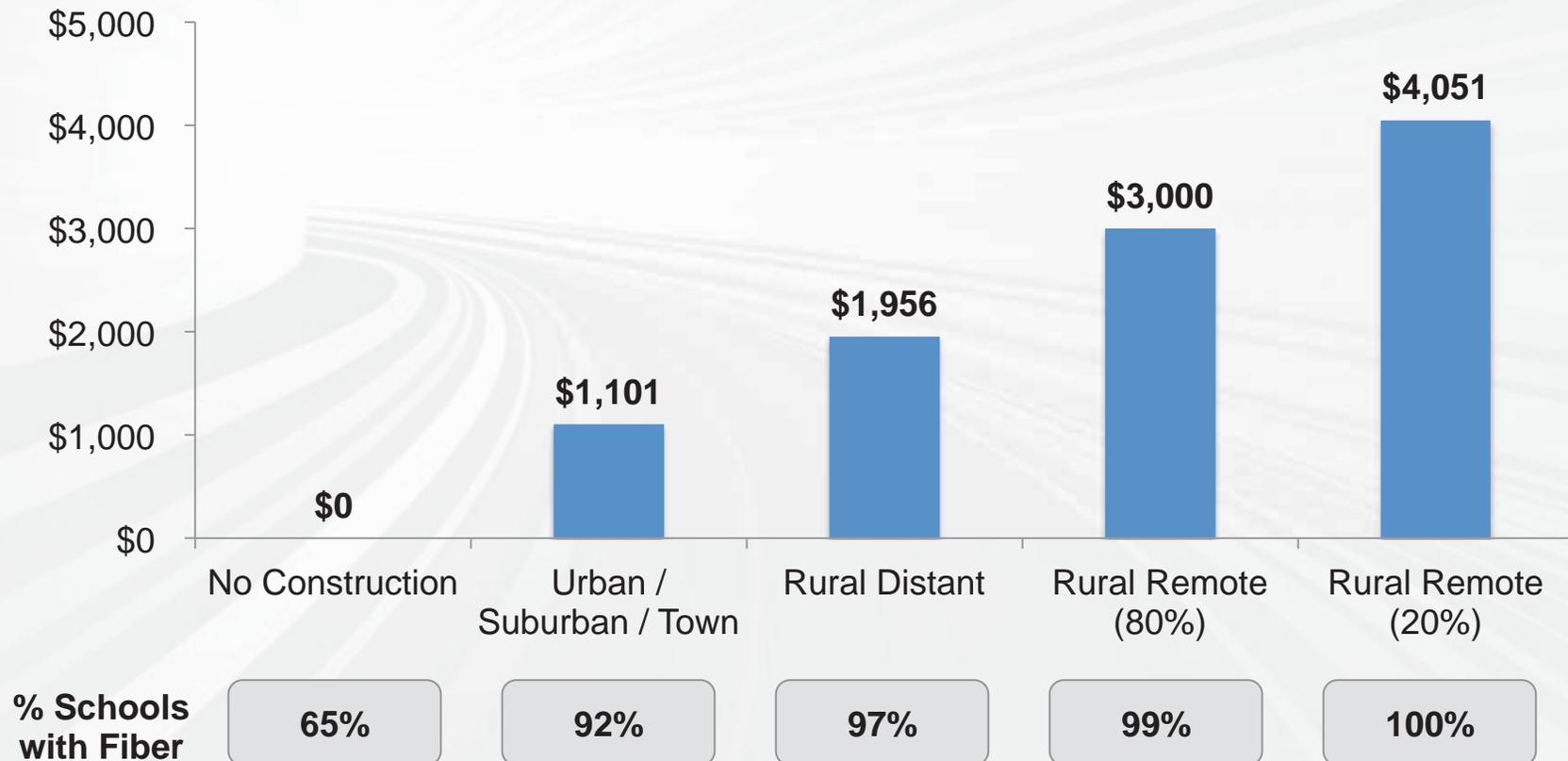
October 2014

Bandwidth Demand vs. Broadband Pricing



Cost to Close the Fiber Gap

Total Construction Cost (\$M)



Note: Some schools in each scenario will continue to self-fund build-out through amortized operating expense

Use NRC Discounts to Fund Fiber Builds

- E-rate already provides discounts on non-recurring construction charges
- NRC significantly more cost effective than building into monthly service charges
 - Creates transparency of construction costs
 - Allows enforcement of LCP for fiber construction
 - Eliminates need for service providers to charge cost of capital
 - Ensures construction costs are not charged beyond payback period
 - Increases number of service providers able to compete for business
 - Lowers ongoing cost to E-rate

Critical Roadblocks

- NRC Cap (\$500,000)
 - Not high enough for most school districts to connect all their schools
- Applicant Budgets
 - Schools and libraries don't have capital for large up-front payments
- Access to Affordable Fiber
 - Require service providers to provide fiber (CAF)
 - Allow self-provisioning when no affordable commercial option available

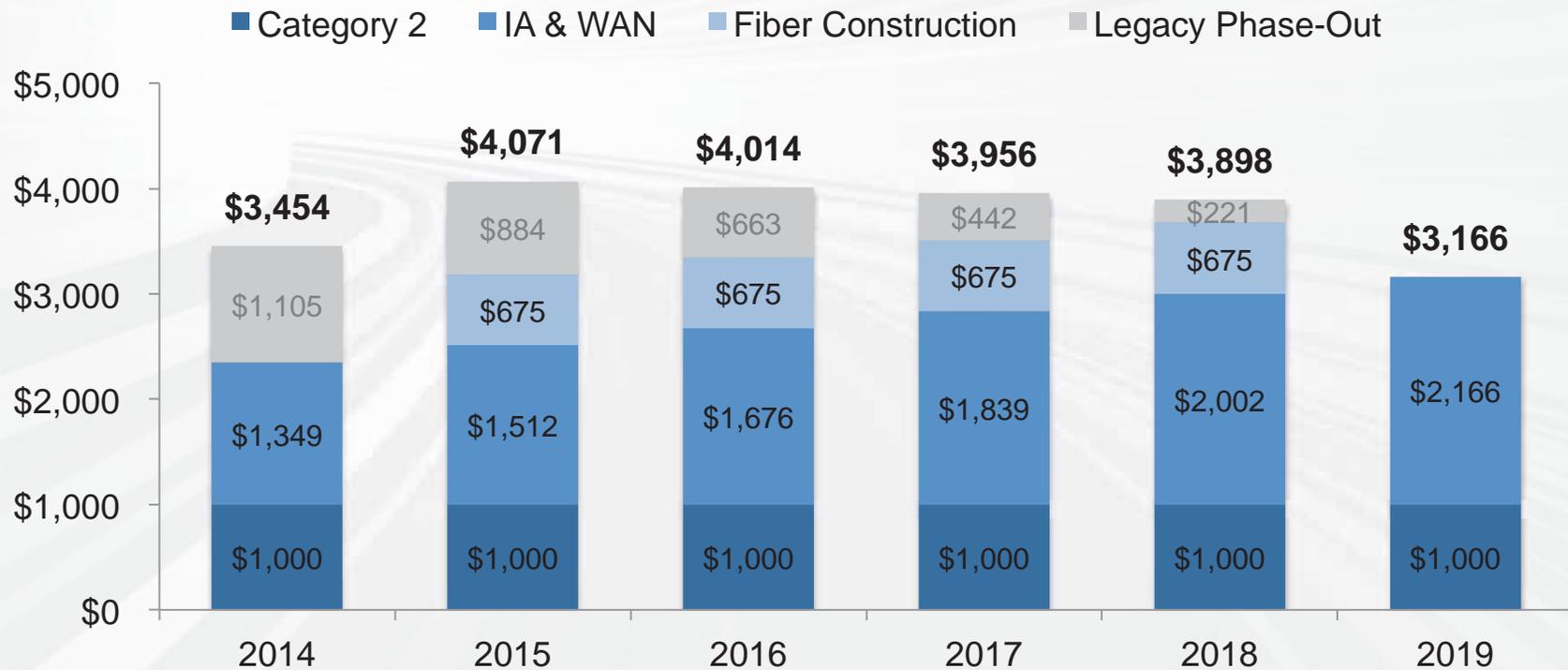
Policy Recommendations: Fiber Gap

- NRC Cap
 - Suspend NRC cap for 5 years for new fiber construction
- Applicant Budgets
 - Increase funding for new construction (90% discount rate or matching funds)
 - Allow schools to pay their portion of NRC over life of contract
- Access to Affordable Fiber
 - Add self provisioning to ESL if no bid or most cost effective
 - Fund electronics and maintenance for self-provisioned networks
 - Change CAF rules to minimize mileage needed to connect schools

Estimated Annual E-rate Costs

Total projected on-going cost for E-rate program will be over \$3B annually

Total Annual E-rate Cost (\$M)



Note: Annual cost estimates based on 99% subsidized construction scenario

Cost Savings Opportunities

Total Potential 2018 Pre-Discount Savings (\$M)



Note: Enhanced transparency primarily benefits districts/schools not already participating in consortia or using dark fiber

Policy Recommendations: New Consortia

- **Goal:** Aggregate Internet access purchasing for greater economies of scale and network concurrency benefits
- **Policy Recommendations**
 - Provide additional 5% discount for consortia that achieve 30% lower cost per Mbps relative to market (for their level of bandwidth need)
 - Fund routers, microwave and optical equipment used to connect consortia members
 - Waive cost allocation requirements for public networks if fiber offered at below market rates

Policy Recommendations: Dark Fiber

- **Goal:** Separate bandwidth need from circuit costs; invest in services that can increase capacity at fixed cost
- **Policy Recommendations**
 - Equalize the treatment of dark and lit fiber (special constructions charges, equipment, maintenance & redundancy)
 - Allow 20 year contracts for leased dark fiber and IRUs if contracts meet national benchmark prices

Policy Recommendations: Transparency

- **Goal:** Increase market efficiency to drive down total cost
- **Policy Recommendations**
 - Require USAC to publish updates to Item 21 data as part of PIA process
 - Increase enforcement of the LCP rule and clearly define what constitutes a similarly situated customer
 - Direct USAC to prioritize PIA reviews based on (1) total cost of services and (2) cost of each service relative to average cost across applicants
 - Standardize collection of pricing data for Category 2 equipment