

	Policy			
	<u>Alternative 1</u> Maximizing Existing Infrastructure/Minimizing Impacts/ Implementing Policy Changes	<u>Alternative 2</u> Addressing Critical Issues	<u>Alternative 3</u> Considering Unconstrained Infrastructure	<u>Recommended Preferred Alternative</u>
Improvement Description	<ul style="list-style-type: none"> Add distance-based tolling on the Dulles Greenway; The toll price will be based on the distance a motorist travels; not one fixed price. Increase peak period tolling in both directions on Dulles Toll Road; motorists will pay higher toll during the peak hours in both directions on Dulles Toll Road Use technology, cameras, and dynamic message signs for traffic monitoring/management 	<ul style="list-style-type: none"> Use technology, cameras, and dynamic message signs for traffic monitoring/management 	<ul style="list-style-type: none"> Use technology, cameras, and dynamic message signs for traffic monitoring/management 	<ul style="list-style-type: none"> Add distance-based tolling on the Dulles Greenway; The toll price will be based on the distance a motorist travels; not one fixed price. Increase peak period tolling in peak direction only on Dulles Toll Road; motorists will pay higher toll in the AM (morning) peak hours for eastbound direction and in the PM (evening) peak hours for the westbound direction Use technology, cameras, and dynamic message signs for traffic monitoring/management
Summary of Benefits	<ul style="list-style-type: none"> Optimizes existing capacity for vehicle throughput on Dulles Greenway Reduces traffic volume on Route 28 north of Route 267 and on the most critical movements: <ul style="list-style-type: none"> Southbound Route 28 to eastbound Dulles Toll Road Westbound Dulles Toll Road to northbound Route 28 Manages traffic congestion in the peak direction along Dulles Toll Road Dynamic message signs provide travel time information to help motorists make route decisions Cameras support traffic monitoring/management 	<ul style="list-style-type: none"> Dynamic message signs provide travel time information to help motorists make route decisions Cameras support traffic monitoring/management 	<ul style="list-style-type: none"> Dynamic message signs provide travel time information to help motorists make route decisions Cameras support traffic monitoring/management 	<ul style="list-style-type: none"> Same as Alternative 1
Right of Way Impacts	N/A	N/A	N/A	N/A
Cost Estimate (2020 Dollars)*	N/A	N/A	N/A	N/A

*Infrastructure costs are included in interchange/mainline items below

Route 606 (Old Ox Road)/Route 28 Interchange Area

	<u>Alternative 1</u> Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	<u>Alternative 2</u> Addressing Critical Issues	<u>Alternative 3</u> Considering Unconstrained Infrastructure	<u>Recommended Preferred Alternative</u>
Graphic				
Improvement Description	<ul style="list-style-type: none"> Partial cloverleaf 	<ul style="list-style-type: none"> Diverging Diamond Interchange (DDI) Click here for more information on a DDI 	<ul style="list-style-type: none"> Single Point Urban Interchange (SPUI) Click here for more information on a SPUI 	<ul style="list-style-type: none"> Same as Alternative 2
Summary of Benefits	<ul style="list-style-type: none"> Eliminates four weave areas: <ul style="list-style-type: none"> Southbound and northbound Route 28 under Route 606 Eastbound and westbound Route 606 over Route 28 Provides comparable traffic operations along Route 606 as the existing cloverleaf design Maintains existing interchange footprint area and preserves existing stormwater facilities 	<ul style="list-style-type: none"> Eliminates four weave areas: <ul style="list-style-type: none"> Southbound and northbound Route 28 under Route 606 Eastbound and westbound Route 606 over Route 28 Provides comparable traffic operations along Route 606 as the existing cloverleaf design Maintains existing bridge infrastructure and accommodates planned six through lanes on Route 606 Maintains existing interchange footprint area and preserves existing stormwater facilities 	<ul style="list-style-type: none"> Eliminates four weave areas: <ul style="list-style-type: none"> Southbound and northbound Route 28 under Route 606 Eastbound and westbound Route 606 over Route 28 Provides comparable traffic operations along Route 606 as the existing cloverleaf design 	<ul style="list-style-type: none"> Same as Alternative 2
Right of Way Impacts	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Approximately 0.2 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 0.2 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 0.2 acres (no building structures)
Cost Estimate (2020 Dollars)	\$19 – \$25 million	\$35 - \$48 million	\$46 – \$62 million	\$35 – \$48 million

Innovation Avenue/Route 28 Interchange Area

	<u>Alternative 1</u> Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	<u>Alternative 2</u> Addressing Critical Issues	<u>Alternative 3</u> Considering Unconstrained Infrastructure	<u>Recommended Preferred Alternative</u>
Graphic				
Improvement Description	<ul style="list-style-type: none"> Add westbound Innovation Avenue connection to westbound Dulles Greenway Modify southbound Route 28 off-ramp to tie with westbound Dulles Greenway and Innovation Avenue via a signalized intersection 	<ul style="list-style-type: none"> Add westbound Innovation Avenue connection to westbound Dulles Greenway Modify southbound Route 28 off ramp from Route 606 interchange area to tie with Dulles Greenway and Innovation Avenue via a signalized intersection Add new direct connection ramp from westbound Innovation Avenue to the new flyover ramp 	<ul style="list-style-type: none"> Add westbound Innovation Avenue connection to westbound Dulles Greenway Replace existing westbound Innovation Avenue to southbound Route 28 loop ramp with two new ramps providing access to (1) southbound Route 28 mainline, and (2) the new flyover ramp to Dulles Airport Access Road/eastbound Dulles Toll Road Construct planned Pacific Boulevard between Route 606 and Innovation Avenue 	<ul style="list-style-type: none"> Construct planned Pacific Boulevard between Route 606 and Innovation Avenue
Summary of Benefits	<ul style="list-style-type: none"> Maintains existing bridge infrastructure over Route 28 Provides direct access from Innovation Avenue to westbound Dulles Greenway 	<ul style="list-style-type: none"> Maintains existing bridge infrastructure over Route 28 Provides direct access from Innovation Avenue to westbound Dulles Greenway 	<ul style="list-style-type: none"> Maintains existing bridge infrastructure over Route 28 Provides direct access from Innovation Avenue to westbound Dulles Greenway Pacific Boulevard provides additional network connectivity and provides an alternate route for local trips that would otherwise use the Route 28 and Route 606 interchange 	<ul style="list-style-type: none"> Maintains existing bridge infrastructure over Route 28 Pacific Boulevard provides additional network connectivity and provides an alternate route for local trips that would otherwise use the Route 28 and Route 606 interchange
Right of Way Impacts	<ul style="list-style-type: none"> Approximately 6.8 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 6.4 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 9.7 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 8.7 acres (no building structures)
Cost Estimate (2020 Dollars)	\$17 – \$23 million	\$17 – \$23 million	\$20 – \$27 million	\$17 – \$23 million

Route 28/Dulles Toll Road/Dulles Greenway Interchange Area

	Alternative 1 Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	Alternative 2 Addressing Critical Issues	Alternative 3 Considering Unconstrained Infrastructure	Alternative 3- Option B Considering Unconstrained Infrastructure	Recommended Preferred Alternative
Graphic					
Improvement Description	<ul style="list-style-type: none"> • Add collector-distributor road system along southbound Route 28 • Widen southbound Route 28 to eastbound Dulles Toll Road loop ramp to two lanes • Add ramp braid to separate traffic along eastbound Dulles International Airport Access Highway between ramp to northbound Route 28 and ramp from southbound Route 28 Click here for example of ramp braid • Construct new flyover ramp for eastbound/westbound Dulles Greenway ramp to southbound Route 28 • Widen westbound Dulles Toll Road to northbound Route 28 ramp to two lanes and add ramp braid to separate traffic between westbound Dulles Toll Road ramp and northbound Route 28 off-ramp to Innovation Avenue Click here for example of ramp braid • Replace all toll plazas with new electronic tolling • Extend westbound Dulles Toll Road lane beyond Dulles Airport Access Road exit to Route 28 bridge 	<ul style="list-style-type: none"> • Construct two-lane flyover ramp from southbound Route 28 to eastbound Dulles Toll Road and westbound Dulles International Airport Access Highway • Widen westbound Dulles Toll Road to northbound Route 28 ramp to two lanes and add ramp braid to separate traffic between westbound Dulles Toll Road ramp and northbound Route 28 off-ramp to Innovation Avenue Click here for example of ramp braid • Replace all toll plazas with new electronic tolling • Extend westbound Dulles Toll Road lane beyond Dulles International Airport Access Highway exit to Route 28 bridge 	<ul style="list-style-type: none"> • Construct three-lane flyover ramp from southbound Route 28 to eastbound Dulles Toll Road and westbound Dulles Airport Access Road • Widen westbound Dulles Toll Road to northbound Route 28 ramp to three lanes and add ramp braid to separate traffic between westbound Dulles Toll Road ramp and northbound Route 28 off-ramp to Innovation Avenue Click here for example of ramp braid • Replace all toll plazas with new electronic tolling • Implement northbound collector-distributor road system between Route 267 and Route 606 interchanges • Extend westbound Dulles Toll Road lane beyond Dulles International Airport Access Highway exit to Route 28 bridge 	<ul style="list-style-type: none"> • Same as Alternative 3 with one exception: add connection from Dulles Corner Drive to northbound Route 28 ramp to Route 267 eastbound/westbound 	<ul style="list-style-type: none"> • Same as Alternative 2 with refinements to southbound Route 28 to address weaving movements

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Route 28/Dulles Toll Road/Dulles Greenway Interchange Area (Continued)

	Alternative 1 Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	Alternative 2 Addressing Critical Issues	Alternative 3 Considering Unconstrained Infrastructure	Alternative 3- Option B Considering Unconstrained Infrastructure	Recommended Preferred Alternative
Graphic					
Summary of Benefits	<ul style="list-style-type: none"> Addresses two critical movements: <ul style="list-style-type: none"> Southbound Route 28 to eastbound Dulles Toll Road Westbound Dulles Toll Road to northbound Route 28/Innovation Avenue Removes two weaves in interchange area: <ul style="list-style-type: none"> Eliminates southbound Route 28 weave between on-ramp from eastbound/westbound Dulles Greenway and off-ramps to Dulles International Airport Access Highway/eastbound Dulles Toll Road Northbound Route 28 between on-ramp from westbound Dulles Toll Road and off-ramp to Innovation Avenue should Provides better lane utilization on Dulles International Airport Access Highway with toll plaza conversion to all electronic tolling Provides additional capacity to accommodate peak period vehicle demand on westbound Dulles Toll Road to Dulles Greenway 	<ul style="list-style-type: none"> Removes three weaves in interchange area: <ul style="list-style-type: none"> Southbound Route 28 between on-ramp from Dulles Greenway/Dulles Toll Road and off-ramps to Dulles Airport and eastbound Dulles Toll Road Eastbound Dulles International Airport Access Highway between Route 28 ramps Northbound Route 28 between on-ramp from westbound Dulles Toll Road and off-ramp to Innovation Avenue should Addresses two critical movements: <ul style="list-style-type: none"> Southbound Route 28 to eastbound Dulles Toll Road Westbound Dulles Toll Road to northbound Route 28/Innovation Avenue Provides better lane utilization on Dulles International Airport Access Highway with toll plaza conversion to all electronic tolling Provides additional capacity to accommodate peak period vehicle demand on westbound Dulles Toll Road to Dulles Greenway 	<ul style="list-style-type: none"> Removes three weaves in interchange area: <ul style="list-style-type: none"> Southbound Route 28 between on-ramp from Dulles Greenway/Dulles Toll Road and off-ramps to Dulles Airport and eastbound Dulles Toll Road Eastbound Dulles International Airport Access Highway between Route 28 ramps Northbound Route 28 between on-ramp from westbound Dulles Toll Road and off-ramp to Innovation Avenue Addresses two critical movements: <ul style="list-style-type: none"> Southbound Route 28 to eastbound Dulles Toll Road Westbound Dulles Toll Road to northbound Route 28/Innovation Avenue Provides better lane utilization on Dulles International Airport Access Highway with toll plaza conversion to all electronic tolling Provides additional capacity to accommodate peak period vehicle demand on westbound Dulles Toll Road to Dulles Greenway Eliminates additional weaving movements along northbound and southbound Route 28 between Innovation Avenue and Route 606, when compared to Alternative 2 	<ul style="list-style-type: none"> Same as Alternative 3 	<ul style="list-style-type: none"> Same as Alternative 2 with potential to remove other weaves along southbound Route 28
Right of Way Impacts	<ul style="list-style-type: none"> Approximately 7.8 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 17.3 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 18.6 (no building structures) 	<ul style="list-style-type: none"> Approximately 17.3 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 19.5 acres (no building structures)
Cost Estimate (2020 Dollars)	<ul style="list-style-type: none"> \$112 – \$152 million 	<ul style="list-style-type: none"> \$160 – \$216 million 	<ul style="list-style-type: none"> \$222 – \$300 million 	<ul style="list-style-type: none"> \$232 – \$313 million 	<ul style="list-style-type: none"> \$222 – \$300 million

Frying Pan Road/Route 28 Interchange Area

	Alternative 1 Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	Alternative 2 Addressing Critical Issues	Alternative 3 Considering Unconstrained Infrastructure	Recommended Preferred Alternative
Graphic				
Improvement Description	<ul style="list-style-type: none"> Implement barrier separated on-ramp from westbound Frying Pan Road to southbound Route 28 and extend acceleration lane 	<ul style="list-style-type: none"> Expand trumpet interchange 	<ul style="list-style-type: none"> Implement partial Diverging Diamond Interchange (DDI) Click here for information on a DDI 	<ul style="list-style-type: none"> Same as Alternative 1 for southbound Route 28 Extend deceleration lane on northbound Route 28 off-ramp to Frying Pan Road
Summary of Benefits	<ul style="list-style-type: none"> Acceleration lane improvements provides more distance for vehicles to increase speeds from the 25 mph-loop ramp to 55 mph along Route 28 mainline Maintains existing trumpet configuration and existing bridge structure 	<ul style="list-style-type: none"> Improvement changes the loop ramp design speed from 25 mph to 30 mph, allowing vehicles to increase speed before merging with mainline 	<ul style="list-style-type: none"> Reconfiguration replaces southbound Route 28 loop on-ramp with directional ramp, allowing vehicles greater distance to increase speed before merging with mainline 	<ul style="list-style-type: none"> Same as Alternative 1 Northbound deceleration lane provides safer transition for vehicles exiting Route 28, especially for instances when traffic is queued at the signalized ramp terminal.
Right of Way Impacts	<ul style="list-style-type: none"> Approximately 0.1 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 0.5 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 4.7 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 0.2 acres (no building structures)
Cost Estimate (2020 Dollars)	\$3 – \$4 million	\$9 – \$12 million	\$12 – \$17 million	\$4 – \$6 million

Centreville Road Interchange/Route 267 Interchange Area

	Alternative 1 Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	Alternative 2 Addressing Critical Issues	Alternative 3 Considering Unconstrained Infrastructure	Alternative 3- Option B Considering Unconstrained Infrastructure	Recommended Preferred Alternative
Graphic					
Improvement Description	<ul style="list-style-type: none"> No improvements 	<ul style="list-style-type: none"> Implement Single Point Urban Interchange (SPUI) and widen Centreville Road to 6 through lanes Click here for information on a SPUI Provide ramp from Centreville Road to westbound Dulles International Airport Access Highway within the SPUI Widen Centreville Road to 6 lanes 	<ul style="list-style-type: none"> Widen Centreville Road to 6 lanes Provide ramp from Centreville Road to westbound Dulles International Airport Access Highway via a displaced left-turn signal Implement direct access from Innovation Avenue/Dulles Green Boulevard to Centreville Road/Dulles Toll Road 	<ul style="list-style-type: none"> Same as Alternative 3, with modified access from Centreville Road to Innovation Ave via Davis Drive bridge (westbound direction only, return movement provided via Dulles Corner Drive connection to the northbound Route 28 ramp to Route 267) 	<ul style="list-style-type: none"> Convert to Diverging Diamond Interchange (DDI), <i>without</i> direct access to Innovation Avenue, and <i>without</i> ramp from Centreville Road to the Dulles International Airport Access Highway Click here for information on a DDI Widen Centreville Road to 6 lanes
Summary of Benefits	<ul style="list-style-type: none"> Improvement does not require reconstruction of existing bridge infrastructure or right-of-way impacts 	<ul style="list-style-type: none"> Provides direct access to westbound Dulles International Airport Access Highway from Centreville Road Removes one existing traffic signal by consolidating ramp terminal intersections, and increases spacing between traffic signals 	<ul style="list-style-type: none"> Provides direct access to westbound Dulles International Airport Access Highway from Centreville Road Provides additional roadway access to Metrorail station area 	<ul style="list-style-type: none"> Same as Alternative 3 	<ul style="list-style-type: none"> Potentially does not require reconstruction of bridge infrastructure to accommodate 6-lane through lanes on Centreville Road Reduces number of traffic signal phases from 4 to 2 to provide more efficient traffic operations along Centreville Road
Right of Way Impacts	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Approximately 0.5 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 1.9 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 2.8 acres (no building structures) 	<ul style="list-style-type: none"> Approximately 1.0 acres (no building structures)
Cost Estimate (2020 Dollars)	\$0	\$76 – \$103 million	\$127 – \$172 million	\$151 – \$204 million	\$72 – \$98 million

Route 267 Mainline					
		Alternative 1 Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	Alternative 2 Addressing Critical Issues	Alternative 3 Considering Unconstrained Infrastructure	Recommended Preferred Alternative
Graphic					
Improvement Description		<ul style="list-style-type: none"> Extend eastbound Dulles Toll Road 5th through lane to Fairfax County Parkway Extend westbound Dulles Toll Road lane past left exit to Dulles International Airport Access Highway Close eastbound Dulles International Airport Access Highway slip ramps east of and west of Centreville Road 	<ul style="list-style-type: none"> Extend eastbound Dulles Toll Road 5th through lane to Fairfax County Parkway Extend westbound Dulles Toll Road lane past left exit to Dulles International Airport Access Highway Close eastbound Dulles International Airport Access Highway slip ramps east of and west of Centreville Road Close slip ramp from westbound Dulles Toll Road to Dulles International Airport Access Highway 	<ul style="list-style-type: none"> Extend eastbound Dulles Toll Road 5th through lane to Fairfax County Parkway Extend westbound Dulles Toll Road lane past left exit to Dulles International Airport Access Highway Close eastbound Dulles International Airport Access Highway slip ramps east of and west of Centreville Road Close slip ramp from westbound Dulles Toll Road to Dulles International Airport Access Highway 	<ul style="list-style-type: none"> Same as Alternative 1
Summary of Benefits		<ul style="list-style-type: none"> Addresses existing safety issue at eastbound on-ramp from Centreville Road Provides additional capacity on eastbound Dulles Toll Road Removes slip lane conflict points 	<ul style="list-style-type: none"> Addresses existing safety issue at eastbound on-ramp from Centreville Road Provides additional capacity on eastbound Dulles Toll Road Removes slip lane conflict points 	<ul style="list-style-type: none"> Addresses existing safety issue at eastbound on-ramp from Centreville Road Provides additional capacity on eastbound Dulles Toll Road Removes slip lane conflict points 	<ul style="list-style-type: none"> Same as Alternative 1
Right of Way Impacts		<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
Cost Estimate (2020 Dollars)		\$14 – \$20 million	\$14 – \$20 million	\$14 – \$20 million	\$14 – \$20 million

Route 28 Mainline			
<u>Alternative 1</u> Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	<u>Alternative 2</u> Addressing Critical Issues	<u>Alternative 3</u> Considering Unconstrained Infrastructure	<u>Recommended Preferred Alternative</u>
Route 28 mainline improvements are included in Route 28/Dulles Toll Road/Dulles Greenway interchange area improvements previously described on page 4			

Overall Summary					
	<u>Alternative 1</u> Maximizing Existing Infrastructure/Minimizing Impacts/Implementing Policy Changes	<u>Alternative 2</u> Addressing Critical Issues	<u>Alternative 3</u> Considering Unconstrained Infrastructure	<u>Alternative 3- Option B</u> Considering Unconstrained Infrastructure	<u>Recommended Preferred Alternative</u>
Summary of Benefits	<ul style="list-style-type: none"> Optimizes existing capacity on Dulles Greenway and reduces traffic volume on Route 28 north of Route 267 Eliminates critical weaves at Route 28/Dulles Toll/Dulles Greenway interchange Eliminates weaves at Route 606 interchange Adds capacity for key movements: 1) southbound Route 28 to eastbound Dulles Toll Road 2) westbound Dulles Toll Road to northbound Route 28 Avoids reconstruction of numerous bridge structures 	<ul style="list-style-type: none"> Eliminates several weaves at Route 28/Dulles Toll/Dulles Greenway interchange Eliminates weaves at Route 606 interchange Adds direct flyover ramp from southbound Route 28 to eastbound Dulles Toll Road Adds capacity for key movements: 1) southbound Route 28 to eastbound Dulles Toll Road 2) westbound Dulles Toll Road to northbound Route 28 Consolidates two traffic signals on Centreville road to one intersection 	<ul style="list-style-type: none"> Eliminates most weaves at Route 28/Dulles Toll/Dulles Greenway interchange Eliminates weaves at Route 606 interchange Adds direct ramp from southbound Route 28 to eastbound Dulles Toll Road Adds capacity for key movements: 1) southbound Route 28 to eastbound Dulles Toll Road 2) westbound Dulles Toll Road to northbound Route 28 Adds Collector-Distributor roads to Route 28 to remove weaving Adds roadway connections to Pacific Boulevard and Centreville Road 	<ul style="list-style-type: none"> Eliminates most weaves at Route 28/Dulles Toll/Dulles Greenway interchange Eliminates weaves at Route 606 interchange Adds direct ramp from southbound Route 28 to eastbound Dulles Toll Road Adds capacity for key movements: 1) southbound Route 28 to eastbound Dulles Toll Road 2) westbound Dulles Toll Road to northbound Route 28 Adds Collector-Distributor roads to Route 28 to remove weaving Adds roadway connections to Pacific Boulevard, Centreville Road, and Dulles Corner Drive 	<ul style="list-style-type: none"> Optimizes existing capacity on Dulles Greenway and reduces traffic volume on Route 28 north of Route 267 Eliminates most weaves at Route 28/Dulles Toll/Dulles Greenway interchange Eliminates weaves at Route 606 interchange Adds direct ramp from southbound Route 28 to eastbound Dulles Toll Road Adds capacity for key movements: 1) southbound Route 28 to eastbound Dulles Toll Road 2) westbound Dulles Toll Road to northbound Route 28
Right of Way Impacts	Approximately 14.7 acres (no building structures)	Approximately 24.9 acres (no building structures)	Approximately 35.1 acres (no building structures)	Approximately 34.7 acres (no building structures)	Approximately 29.6 acres (no building structures)
Cost Estimate (2020 Dollars)	\$165 – \$224 million	\$311 – \$422 million	\$441 – \$598 million	\$475 - \$643 million	\$364 – \$495 million