Civil 3D to 3DS Max Using Civil View for Compelling Civil Construction Sequences

Jenna Kubiak and Patrick Rice

Skanska USA Civil VDC

AUTODESK. UNIVERSITY

About the speaker

Jenna Kubiak

As an engineer with the Skanska USA Civil VDC team for the past two years, Jenna has utilized a wide range of Autodesk software to perform constructability reviews, quantity takeoffs and create compelling construction sequences for Heavy Civil pursuits. She has worked on jobs ranging from $40 million to $400 million across the US, including the General Dynamics Electric Boat’s South Yard Assembly Building, Chelsea Viaduct, and Hunt’s Point Interstate Access Improvement projects.

About the Co-Speaker

Patrick Rice

With over 10 years in the AEC industry and 6 years with Skanska USA Civil, Patrick is a VDC Manager of a team of 10 VDC Engineers and Coordinators. At Skanska USA Civil, Patrick and the VDC team use multiple Autodesk software and push them to their limit to help win Heavy Civil pursuits across the United States. Patrick has worked on projects such as the $4 Billion LaGuardia Redevelopment Project, Kosciuszko Bridge Project, Chelsea Viaduct Project and numerous Civil pursuits around the United States.

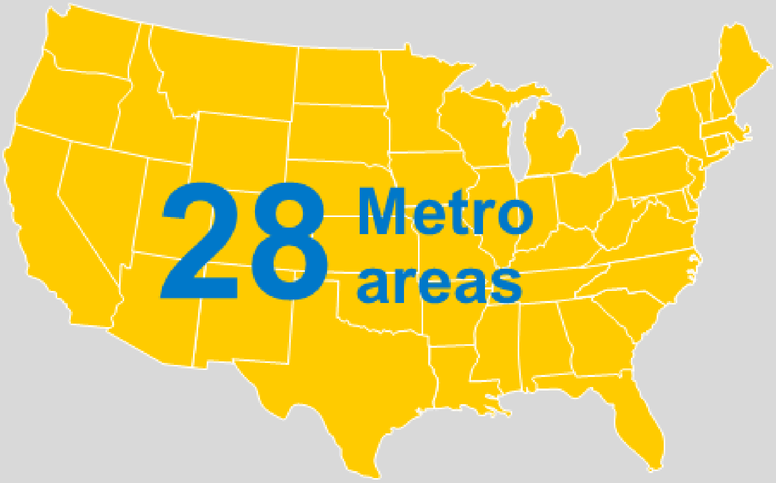
Skanska USA

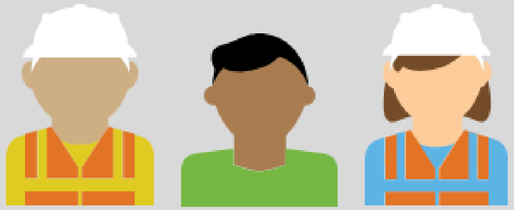
3 business units

Building

Civil

Commercial Development





9,000 employees

$3M annual community investment

$8.1B in 2018 revenue

Notable Projects

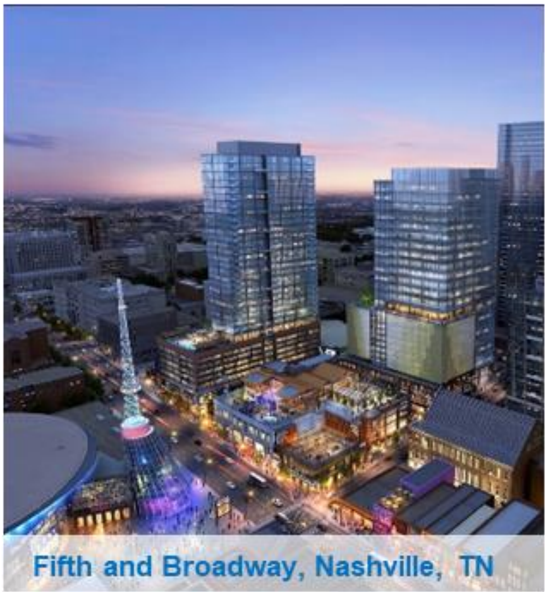
LaGuardia Airport Terminal B Redevelopment, New York, NY

Bank of America Tower, Houston, TX

Moynihan Train Hall, New York, NY

Florida Polytechnic University, Lakeland, FL

2+U, Seattle, WA



Fifth and Broadway, Nashville, TN

George Washington Bridge, New York, NY

The Westside Subway, Los Angeles, CA

Portland International Airport (PDX) Concourse E Extension, Portland, OR

Expo Line, Los Angeles, CA

Quick Survey

How many people are familiar with roadway design in Civil 3D?

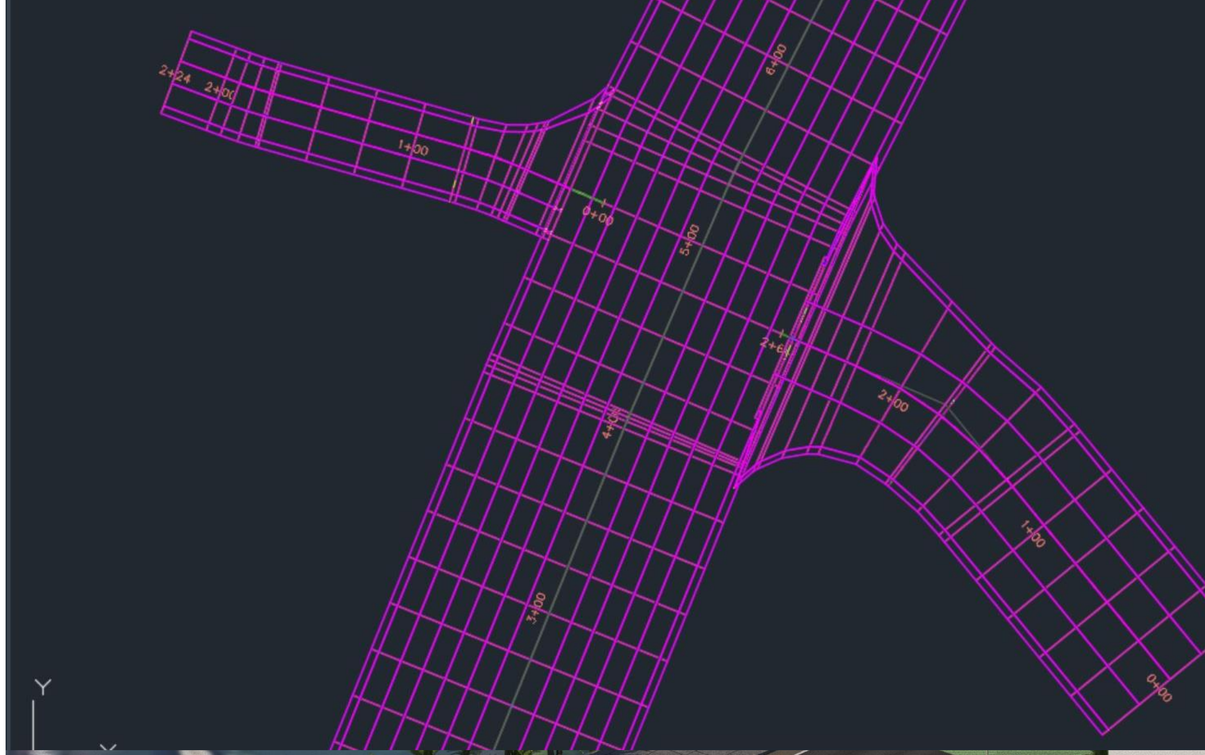
How many people have worked with 3DS Max Design?

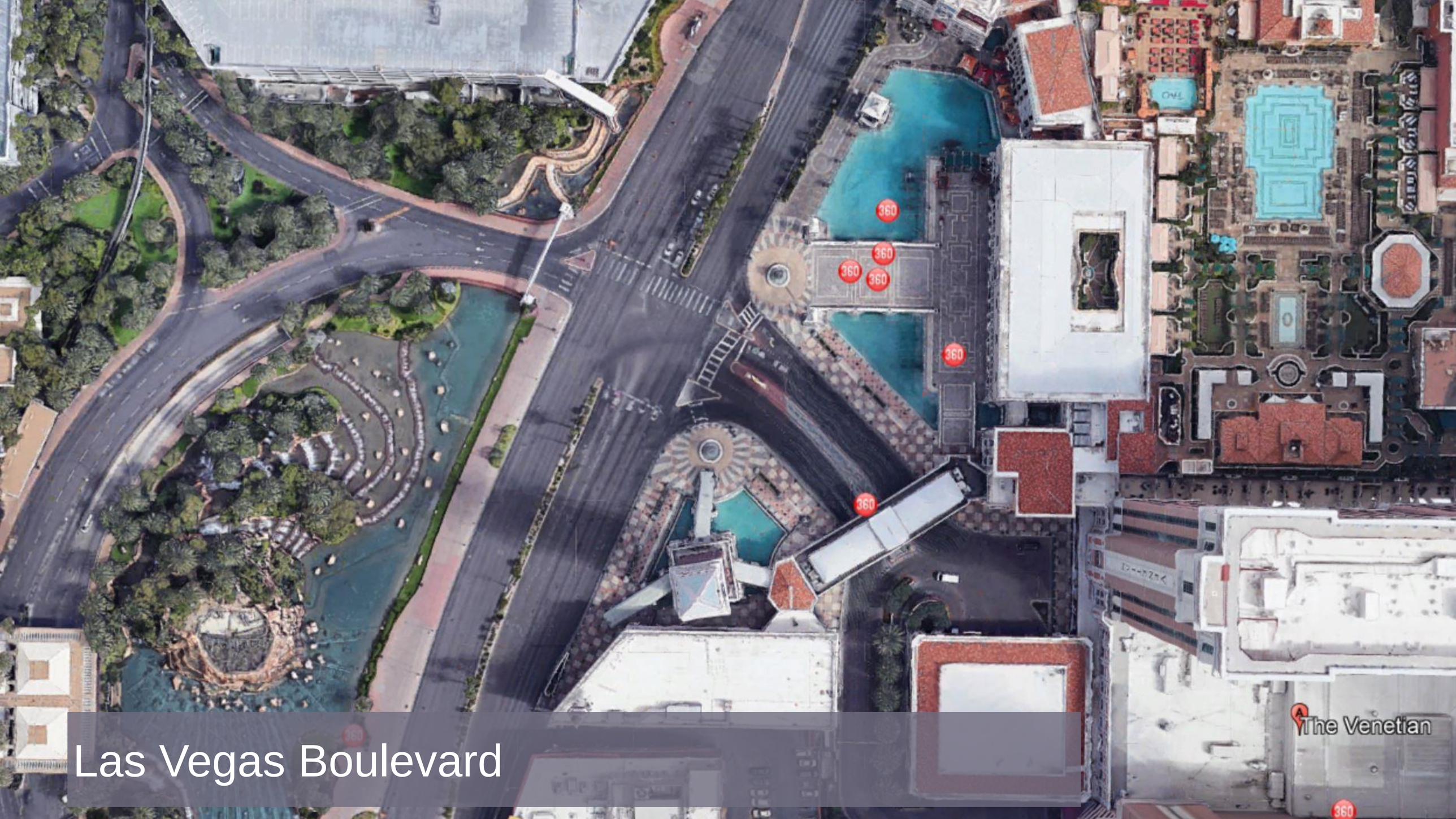
How many people have imported corridors and other Civil 3D elements into 3DS max?

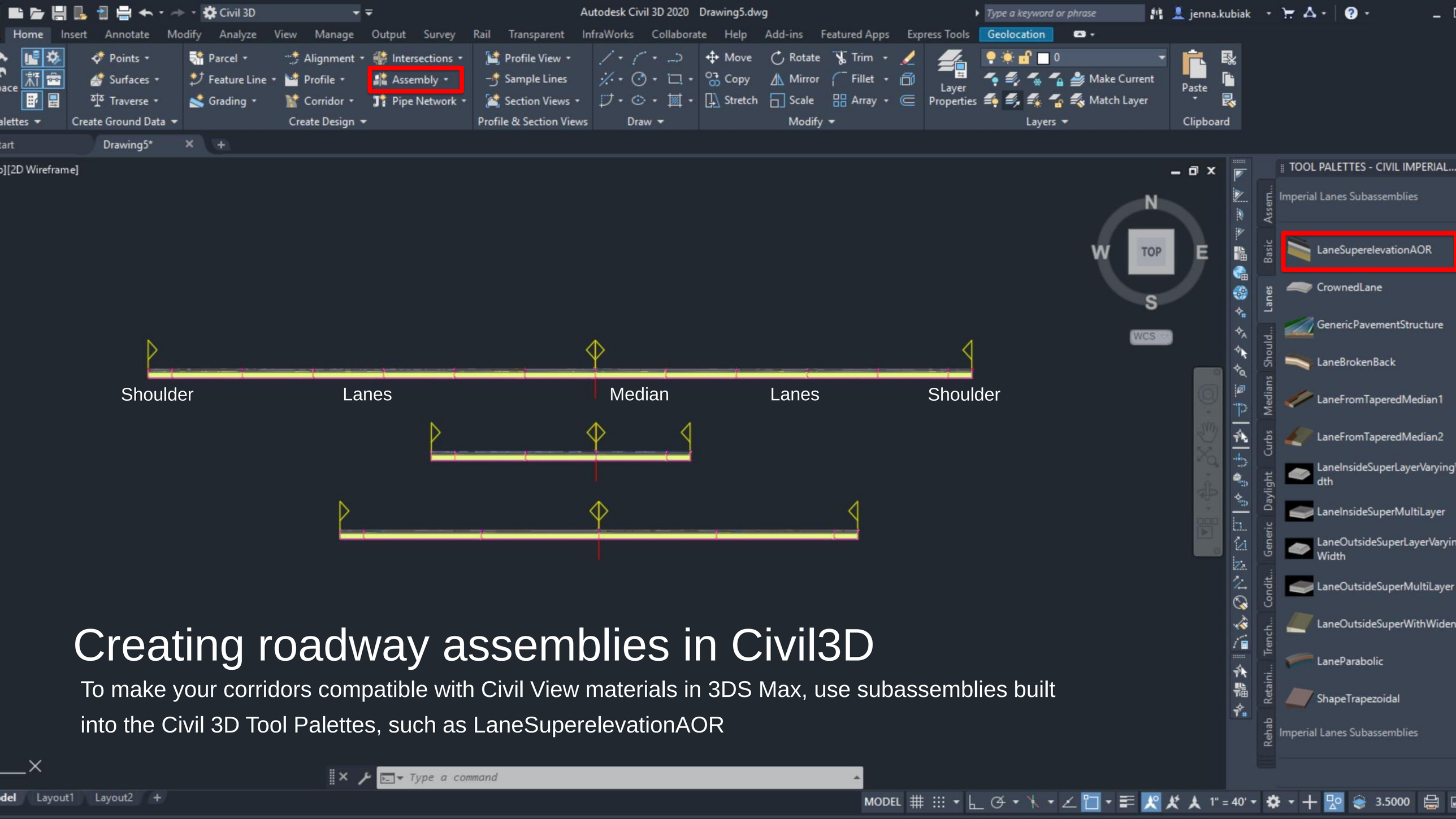
Agenda

Our goal today is to demonstrate how you can transform a simple corridor in Civil 3D into a detailed and compelling roadway visualization with 3DS Max.

- Corridor modelling in Civil 3D
- Exporting to 3DS Max
- Importing roadways with Civil View for 3DS Max
- Applying line striping
- Adding cars
- Modifying roadway materials
- Creating key frames
- Civil View roadway decorations
- Rendering a sequence

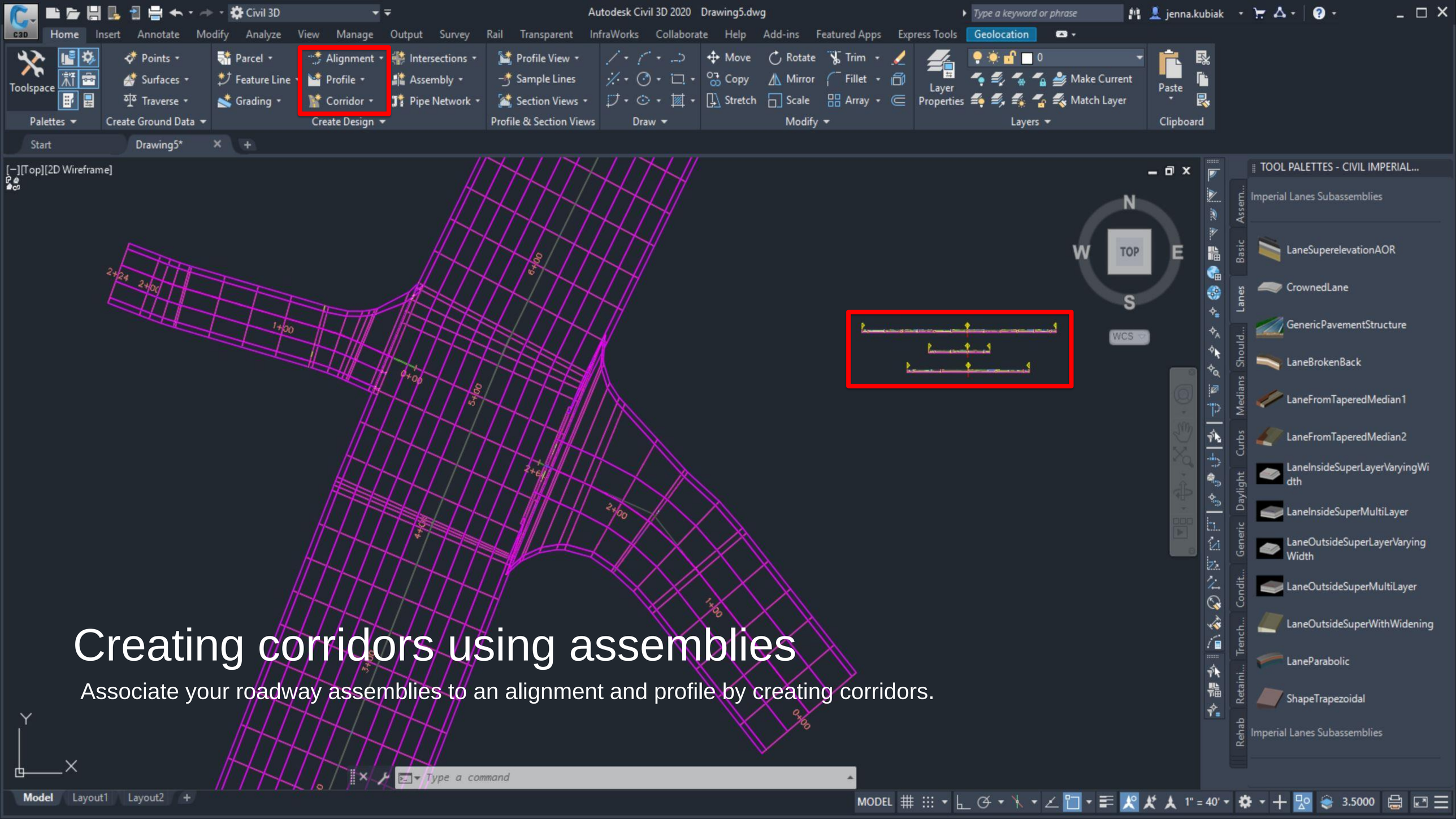


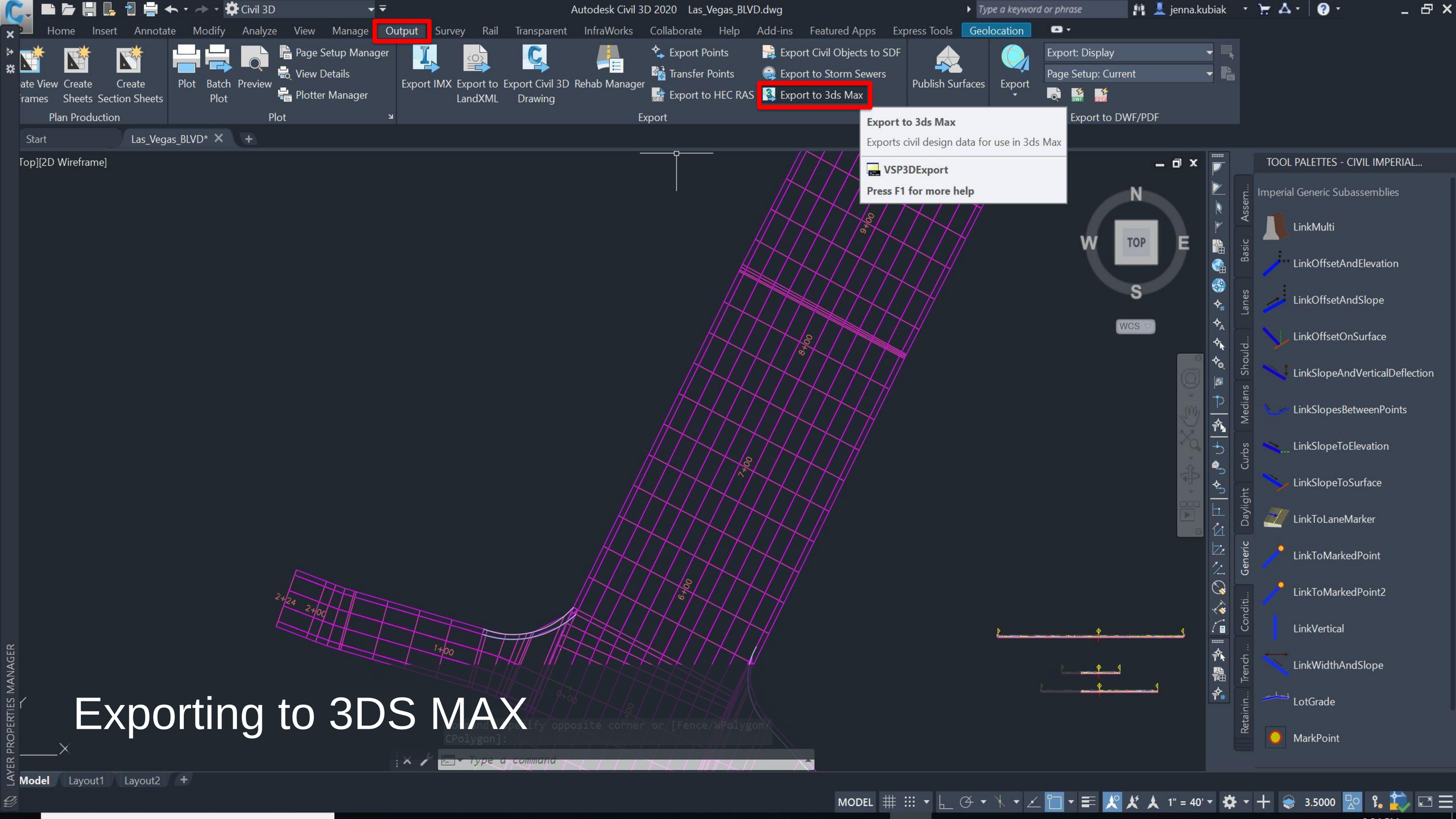

Las Vegas Boulevard
The Venetian



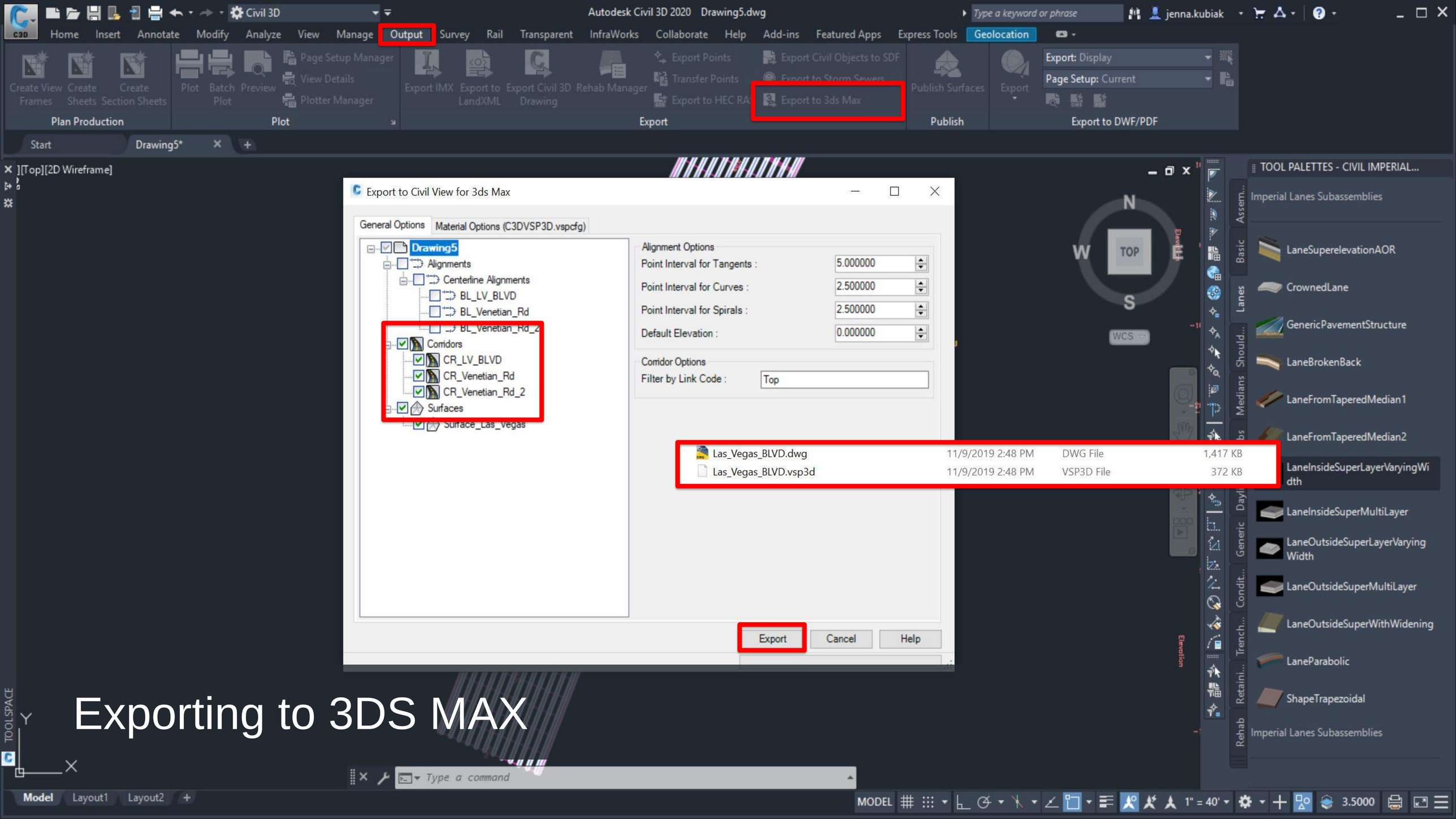
Creating roadway assemblies in Civil3D

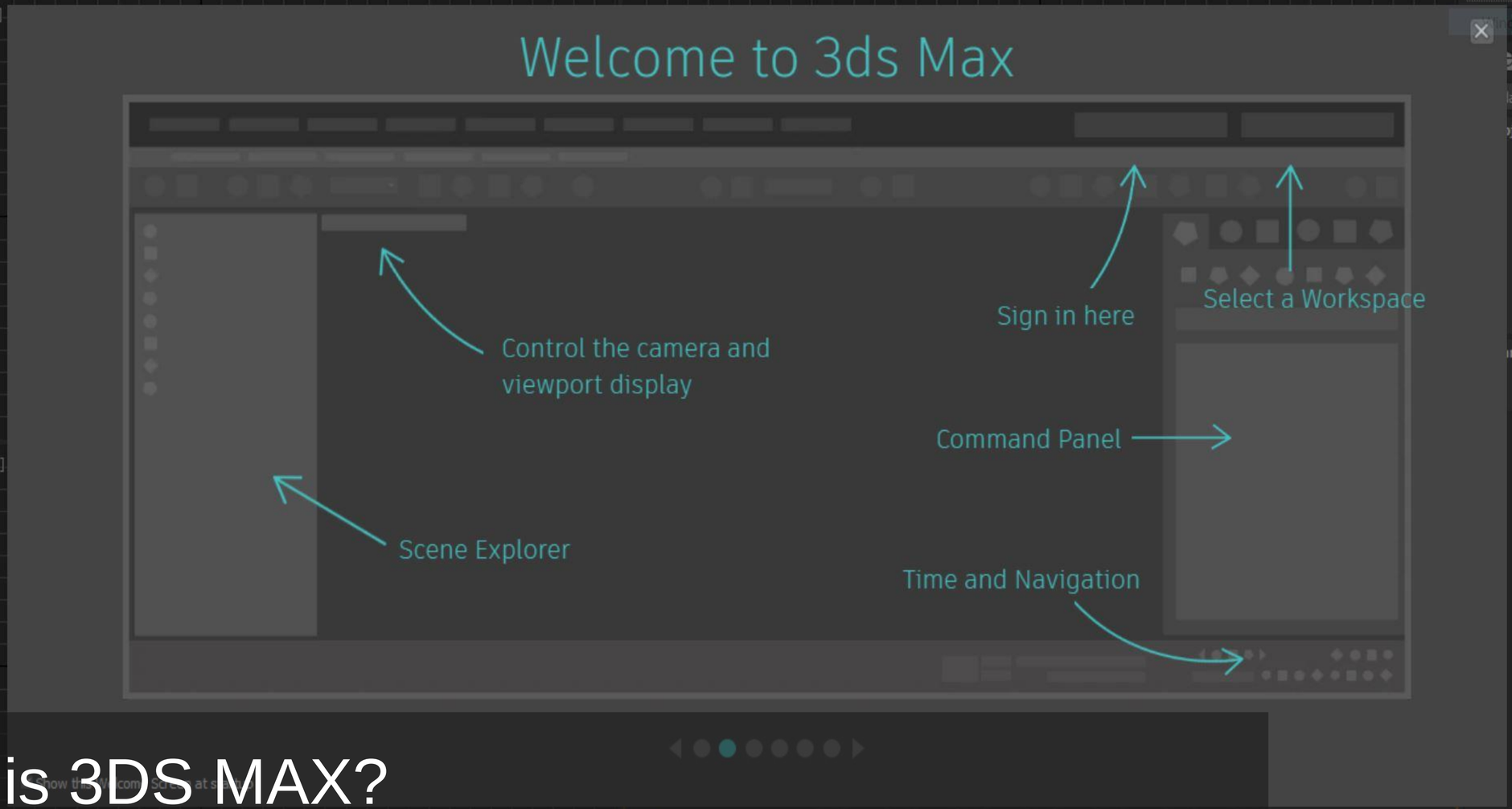
To make your corridors compatible with Civil View materials in 3DS Max, use subassemblies built into the Civil 3D Tool Palettes, such as LaneSuperelevationAOR


Civil 3D
Autodesk Civil 3D 2020 Drawing5.dwg
Type a keyword or phrase
jenna.kubiak
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent InfraWorks Collaborate Help Add-ins Featured Apps Express Tools Geolocation
Toolspace
Points
Surfaces
Traverse
Parcel
Feature Line
Grading
Alignment
Profile
Corridor
Intersections
Assembly
Pipe Network
Profile View
Sample Lines
Section Views
Move
Copy
Stretch
Rotate
Mirror
Scale
Trim
Fillet
Array
Make Current
Match Layer
Layer Properties
Paste
Palettes
Create Ground Data
Create Design
Profile & Section Views
Draw
Modify
Layers
Clipboard
Start
Drawing5*
[−][Top][2D Wireframe]
N
W
TOP
E
S
WCS
TOOL PALETTES - CIVIL IMPERIAL...
Imperial Lanes Subassemblies
LaneSuperelevationAOR
CrownedLane
GenericPavementStructure
LaneBrokenBack
LaneFromTaperedMedian1
LaneFromTaperedMedian2
LaneInsideSuperLayerVaryingWidth
LaneInsideSuperMultiLayer
LaneOutsideSuperLayerVarying Width
LaneOutsideSuperMultiLayer
LaneOutsideSuperWithWidening
LaneParabolic
ShapeTrapezoidal
Imperial Lanes Subassemblies
Assem...
Basic
Lanes
Should...
Medians
Curbs
Daylight
Generic
Condit...
Trench...
Retaini...
Rehab
Creating corridors using assemblies
Associate your roadway assemblies to an alignment and profile by creating corridors.
Type a command
Model
Layout1
Layout2
MODEL
1" = 40'
3.5000



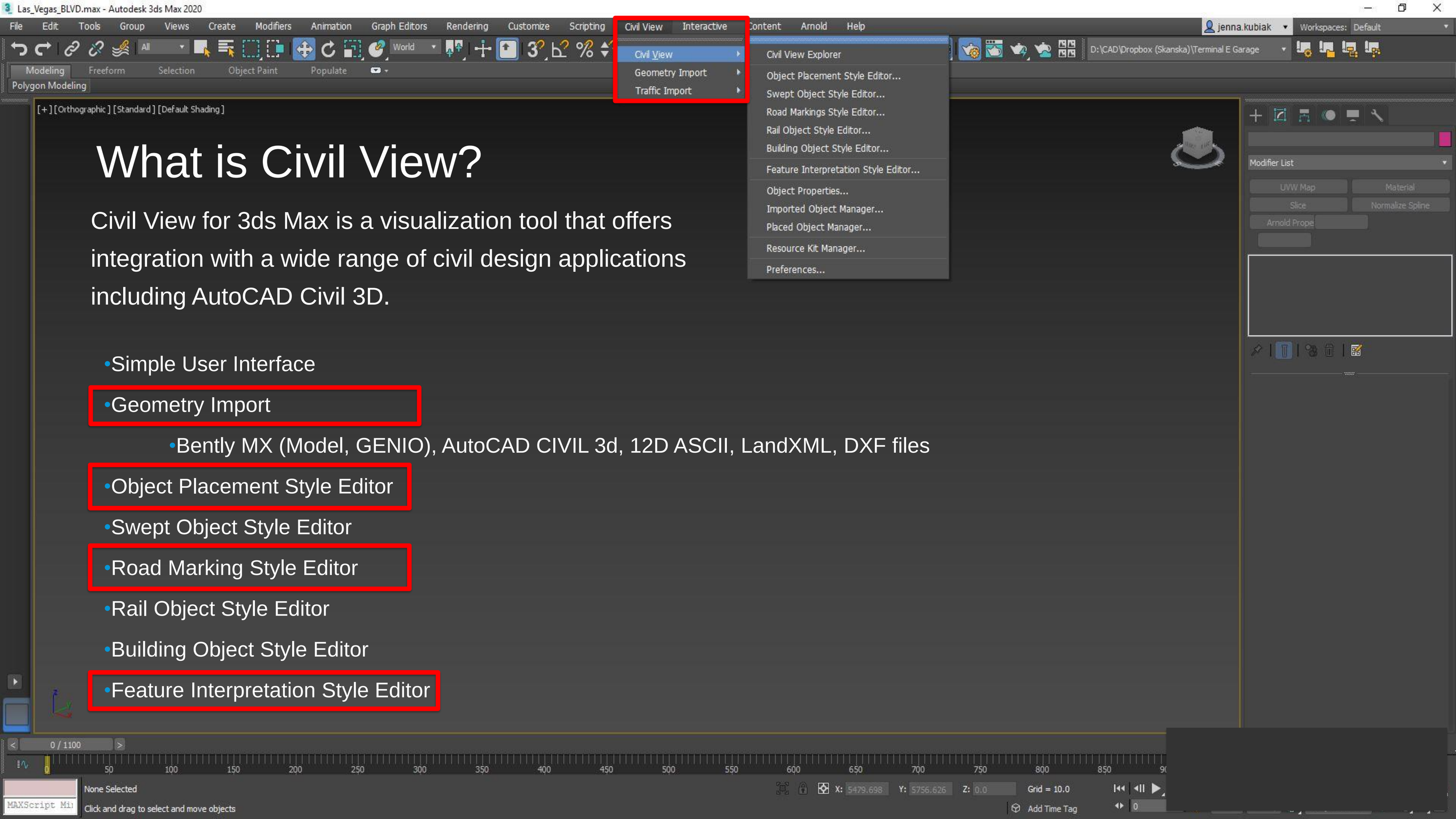
Exporting to 3DS MAX

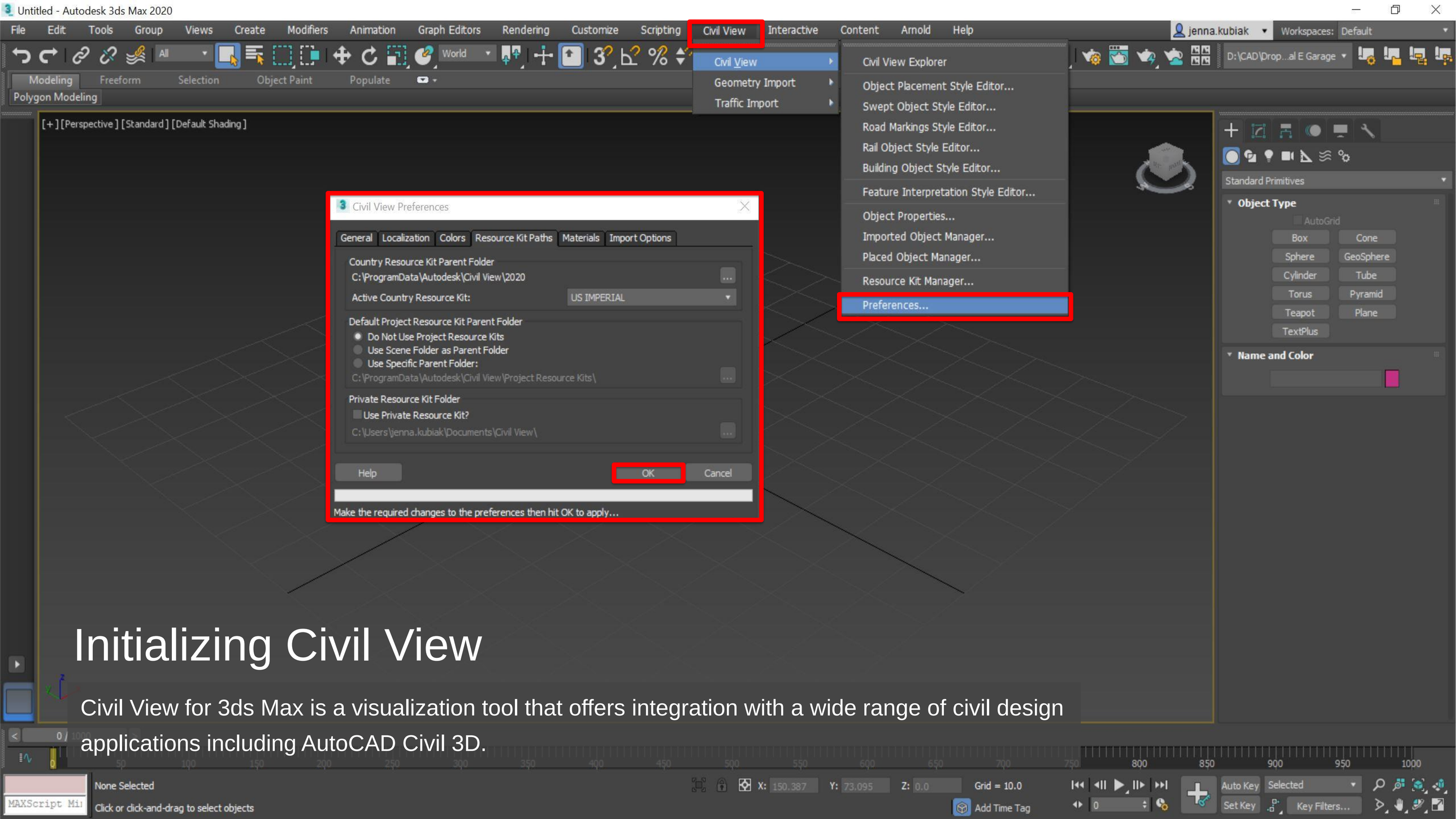

Civil 3D
Autodesk Civil 3D 2020 Drawing5.dwg
Type a keyword or phrase
jenna.kubiak
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent InfraWorks Collaborate Help Add-ins Featured Apps Express Tools Geolocation
Create View Frames
Create Sheets
Create Section Sheets
Plan Production
Plot
Batch Plot
Preview
Page Setup Manager
View Details
Plotter Manager
Plot
Export IMX
Export to LandXML
Export Civil 3D Drawing
Rehab Manager
Export Points
Transfer Points
Export to HEC RAS
Export Civil Objects to SDF
Export to Storm Sewers
Export to 3ds Max
Export
Publish Surfaces
Publish
Export
Export: Display
Page Setup: Current
Export to DWF/PDF
Start
Drawing5*
][Top][2D Wireframe]
Export to Civil View for 3ds Max
General Options
Material Options (C3DVSP3D.vspcfg)
Drawing5
Alignments
Centerline Alignments
BL_LV_BLVD
BL_Venetian_Rd
BL_Venetian_Rd_2
Corridors
CR_LV_BLVD
CR_Venetian_Rd
CR_Venetian_Rd_2
Surfaces
Surface_Las_Vegas
Alignment Options
Point Interval for Tangents : 5.000000
Point Interval for Curves : 2.500000
Point Interval for Spirals : 2.500000
Default Elevation : 0.000000
Corridor Options
Filter by Link Code : Top
Las_Vegas_BLVD.dwg 11/9/2019 2:48 PM DWG File 1,417 KB
Las_Vegas_BLVD.vsp3d 11/9/2019 2:48 PM VSP3D File 372 KB
Export
Cancel
Help
N
W
TOP
S
WCS
TOOL PALETTES - CIVIL IMPERIAL...
Imperial Lanes Subassemblies
LaneSuperelevationAOR
CrownedLane
GenericPavementStructure
LaneBrokenBack
LaneFromTaperedMedian1
LaneFromTaperedMedian2
LaneInsideSuperLayerVaryingWidth
LaneInsideSuperMultiLayer
LaneOutsideSuperLayerVaryingWidth
LaneOutsideSuperMultiLayer
LaneOutsideSuperWithWidening
LaneParabolic
ShapeTrapezoidal
Imperial Lanes Subassemblies
Exporting to 3DS MAX
Type a command
Model
Layout1
Layout2
MODEL
1" = 40'
3.5000



What is 3DS MAX?

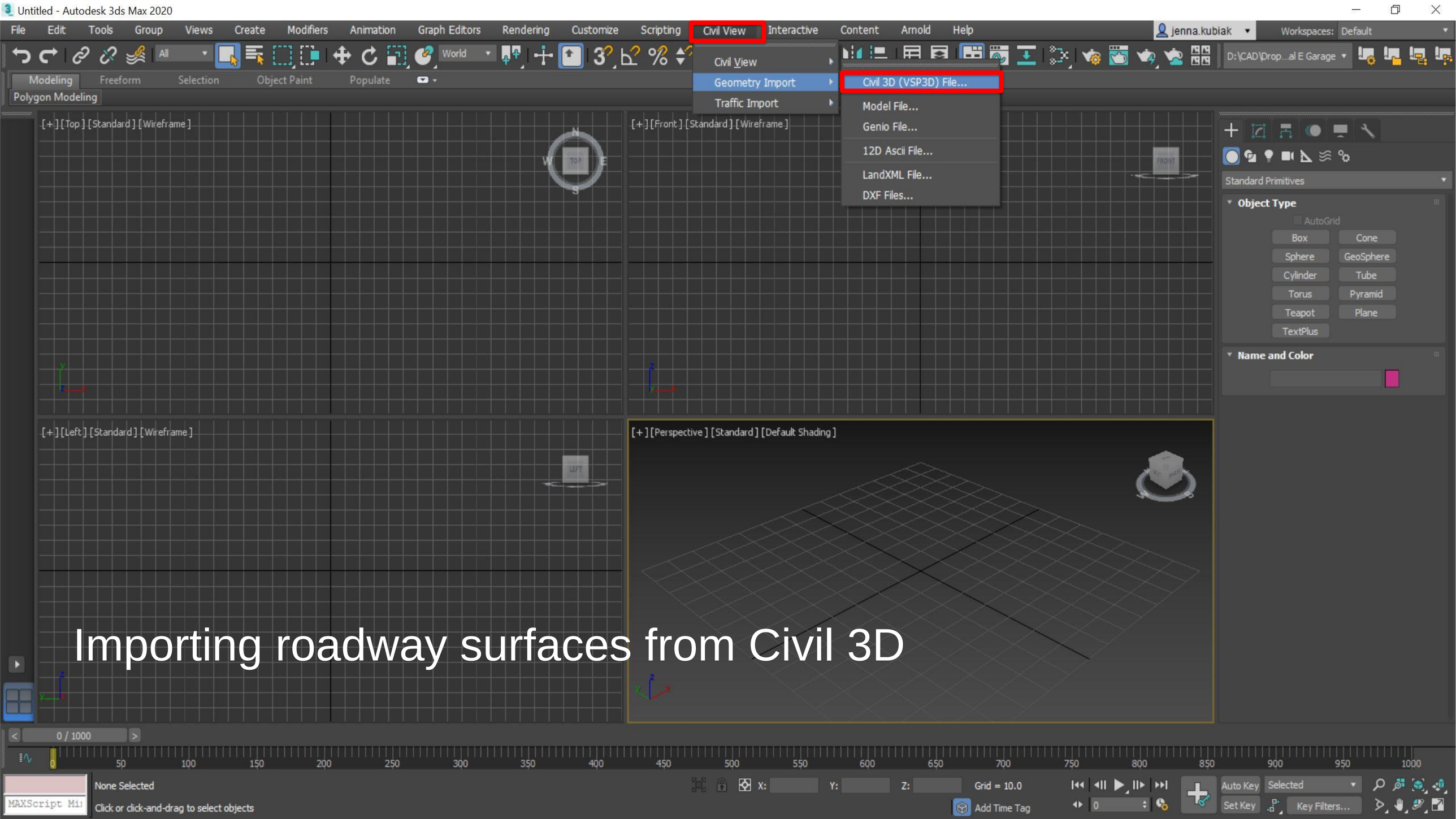
3ds Max is a professional modeling and rendering software for used for design visualization.

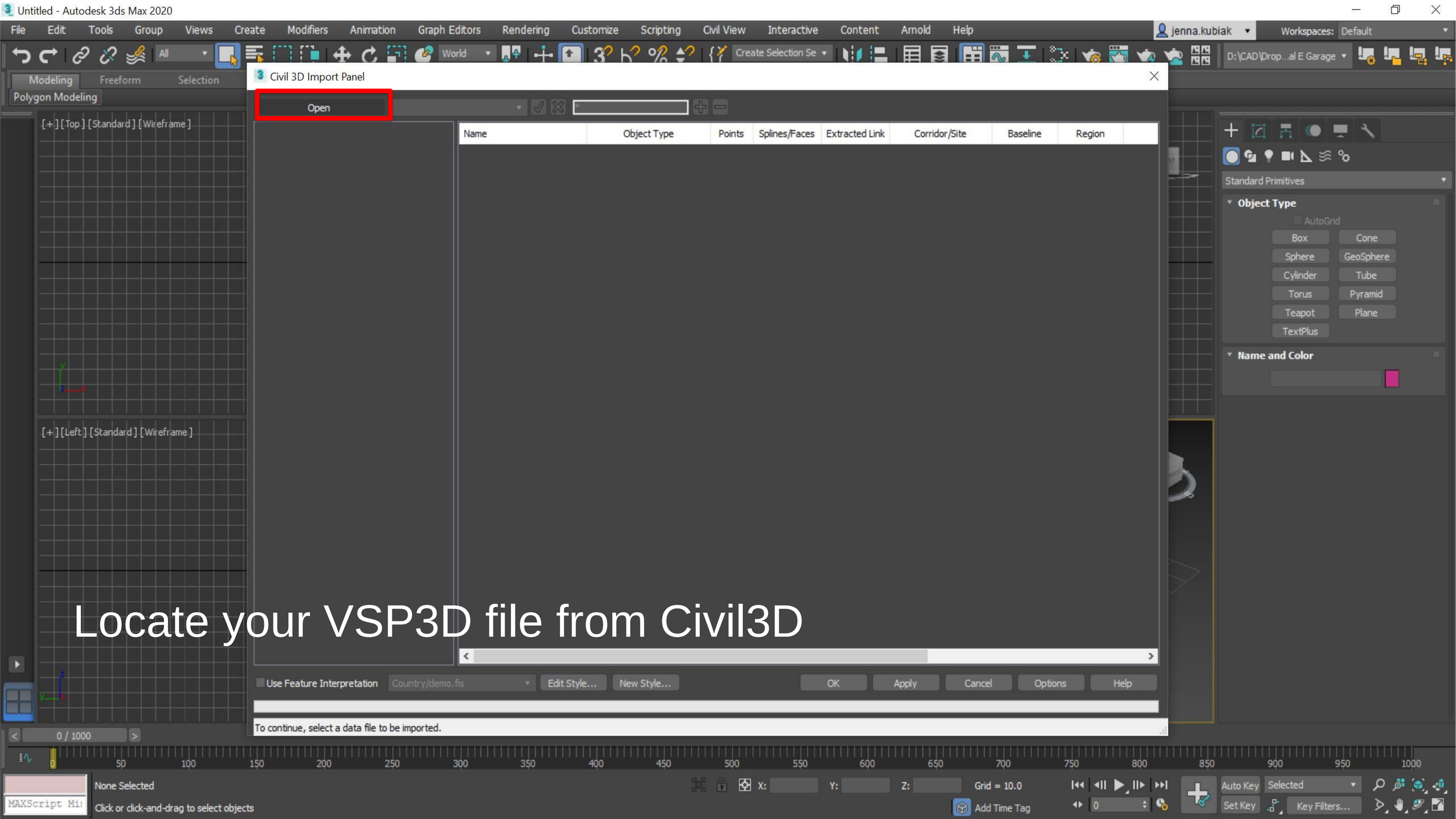

Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
Civil View
Geometry Import
Traffic Import
Civil View Explorer
Object Placement Style Editor...
Swept Object Style Editor...
Road Markings Style Editor...
Rail Object Style Editor...
Building Object Style Editor...
Feature Interpretation Style Editor...
Object Properties...
Imported Object Manager...
Placed Object Manager...
Resource Kit Manager...
Preferences...
[+] [Orthographic] [Standard] [Default Shading]
What is Civil View?
Civil View for 3ds Max is a visualization tool that offers integration with a wide range of civil design applications including AutoCAD Civil 3D.
•Simple User Interface
•Geometry Import
•Bently MX (Model, GENIO), AutoCAD CIVIL 3d, 12D ASCII, LandXML, DXF files
•Object Placement Style Editor
•Swept Object Style Editor
•Road Marking Style Editor
•Rail Object Style Editor
•Building Object Style Editor
•Feature Interpretation Style Editor
None Selected
Click and drag to select and move objects

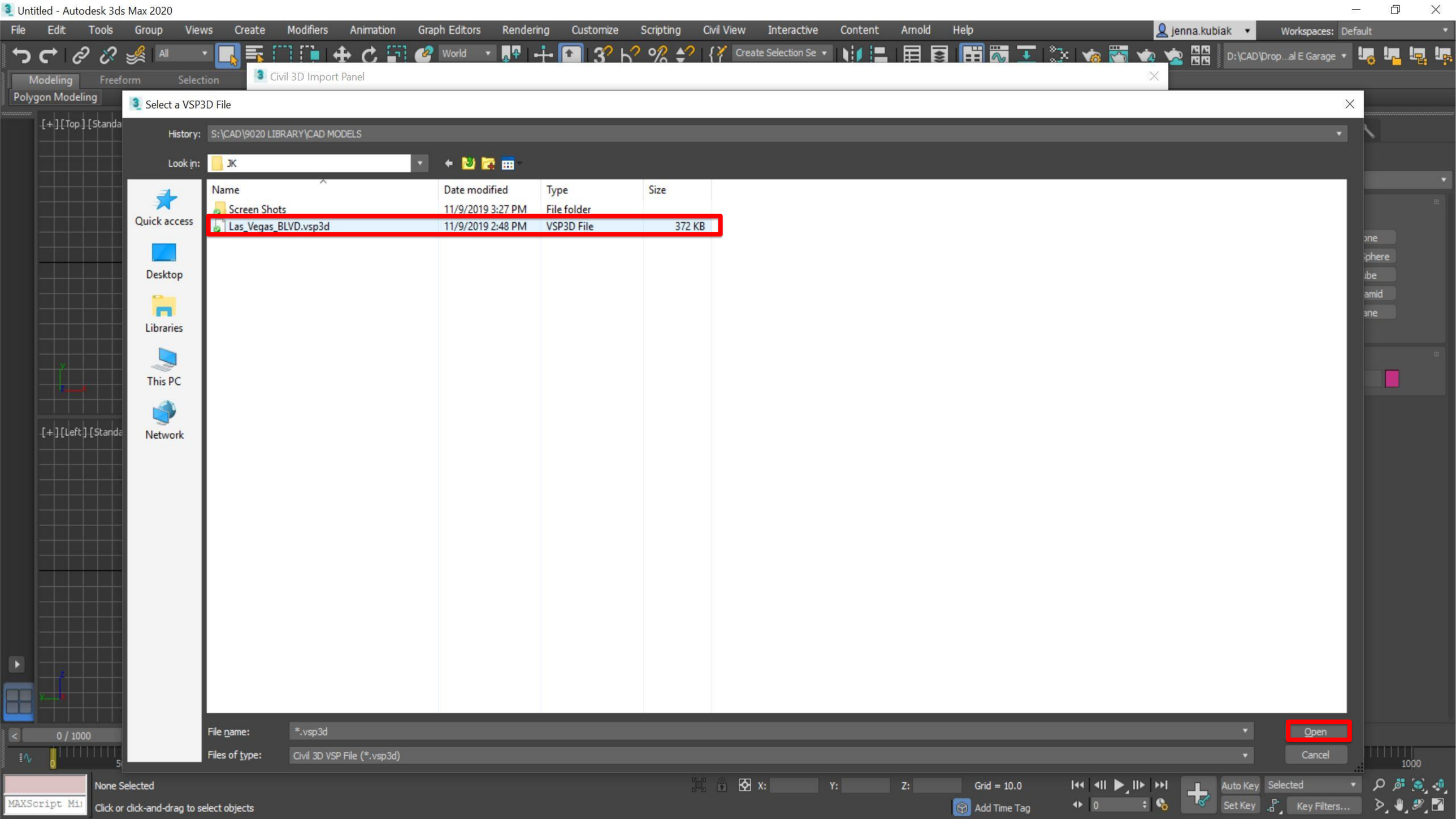


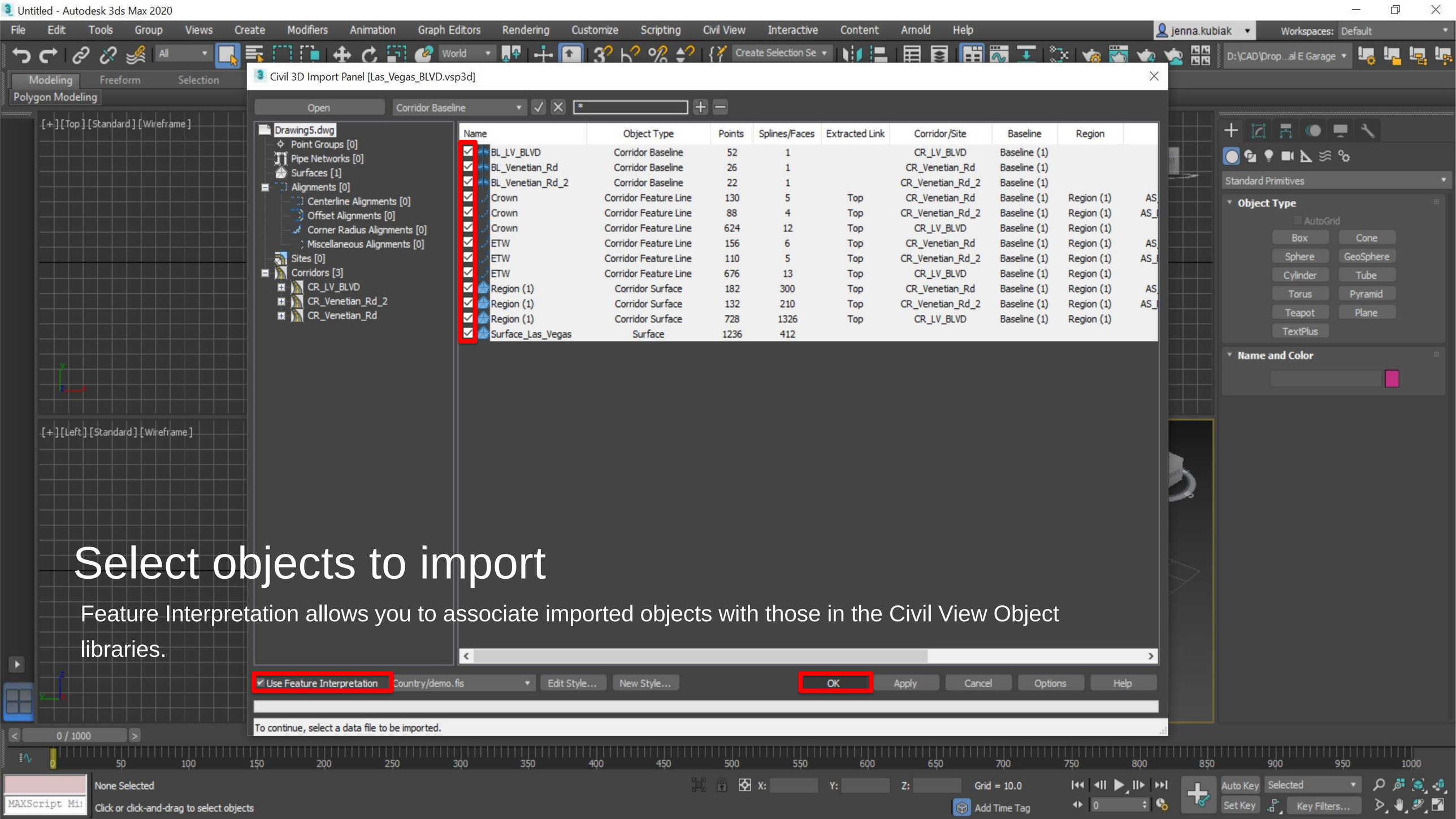
Initializing Civil View

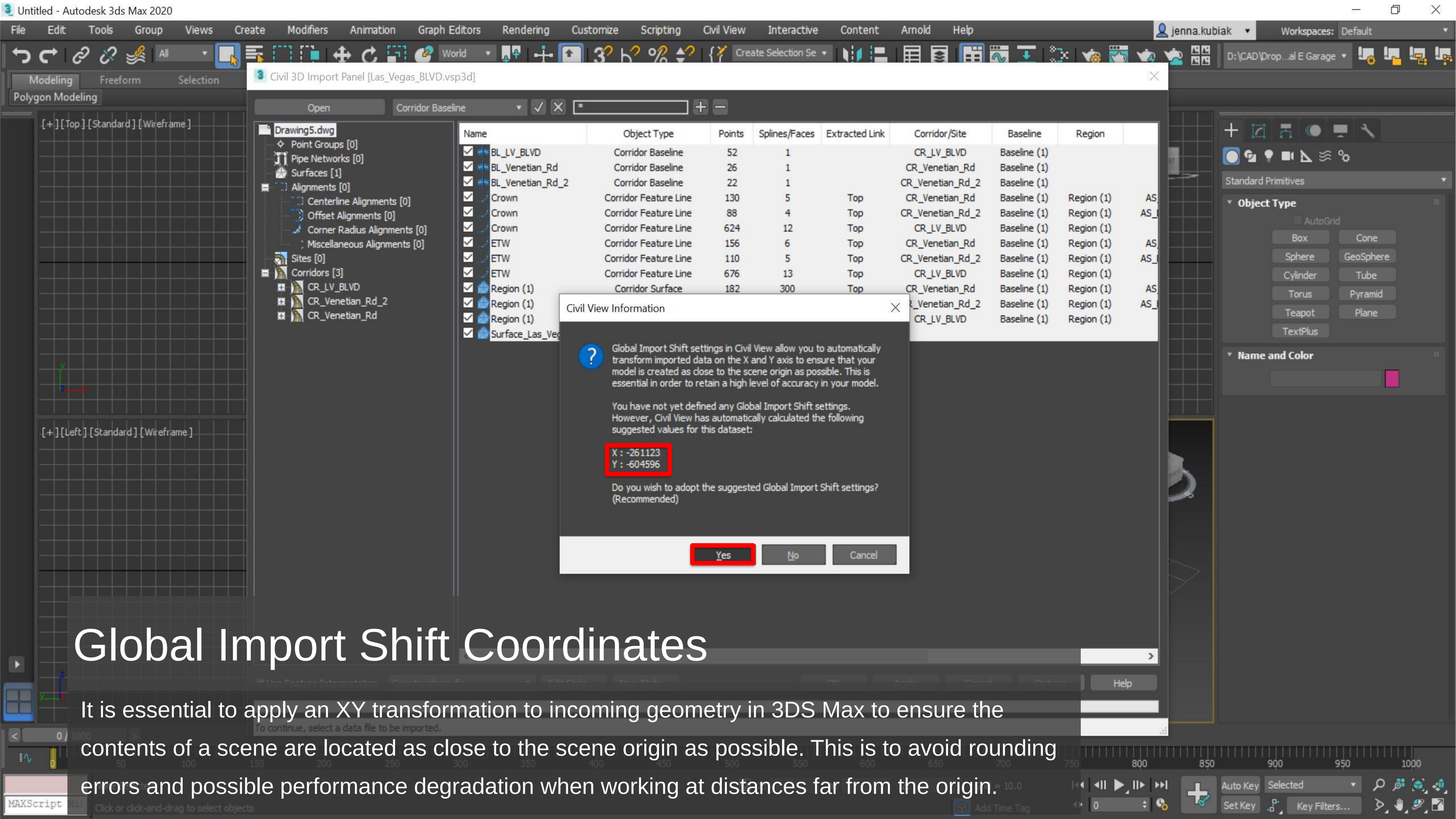
Civil View for 3ds Max is a visualization tool that offers integration with a wide range of civil design applications including AutoCAD Civil 3D.


Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Civil View
Geometry Import
Traffic Import
Civil 3D (VSP3D) File...
Model File...
Genio File...
12D Ascii File...
LandXML File...
DXF Files...
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Top] [Standard] [Wireframe]
[+] [Front] [Standard] [Wireframe]
[+] [Left] [Standard] [Wireframe]
[+] [Perspective] [Standard] [Default Shading]
Standard Primitives
Object Type
AutoGrid
Box Cone
Sphere GeoSphere
Cylinder Tube
Torus Pyramid
Teapot Plane
TextPlus
Name and Color
Importing roadway surfaces from Civil 3D
0 / 1000
None Selected
Click or click-and-drag to select objects
Grid = 10.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...


Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection
Polygon Modeling
[+] [Top] [Standard] [Wireframe]
[+] [Left] [Standard] [Wireframe]
Civil 3D Import Panel
Open
Name
Object Type
Points
Splines/Faces
Extracted Link
Corridor/Site
Baseline
Region
Use Feature Interpretation
Country/demo.fis
Edit Style...
New Style...
OK
Apply
Cancel
Options
Help
To continue, select a data file to be imported.
Standard Primitives
Object Type
AutoGrid
Box
Cone
Sphere
GeoSphere
Cylinder
Tube
Torus
Pyramid
Teapot
Plane
TextPlus
Name and Color
Locate your VSP3D file from Civil3D
0 / 1000
None Selected
Click or click-and-drag to select objects
Grid = 10.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

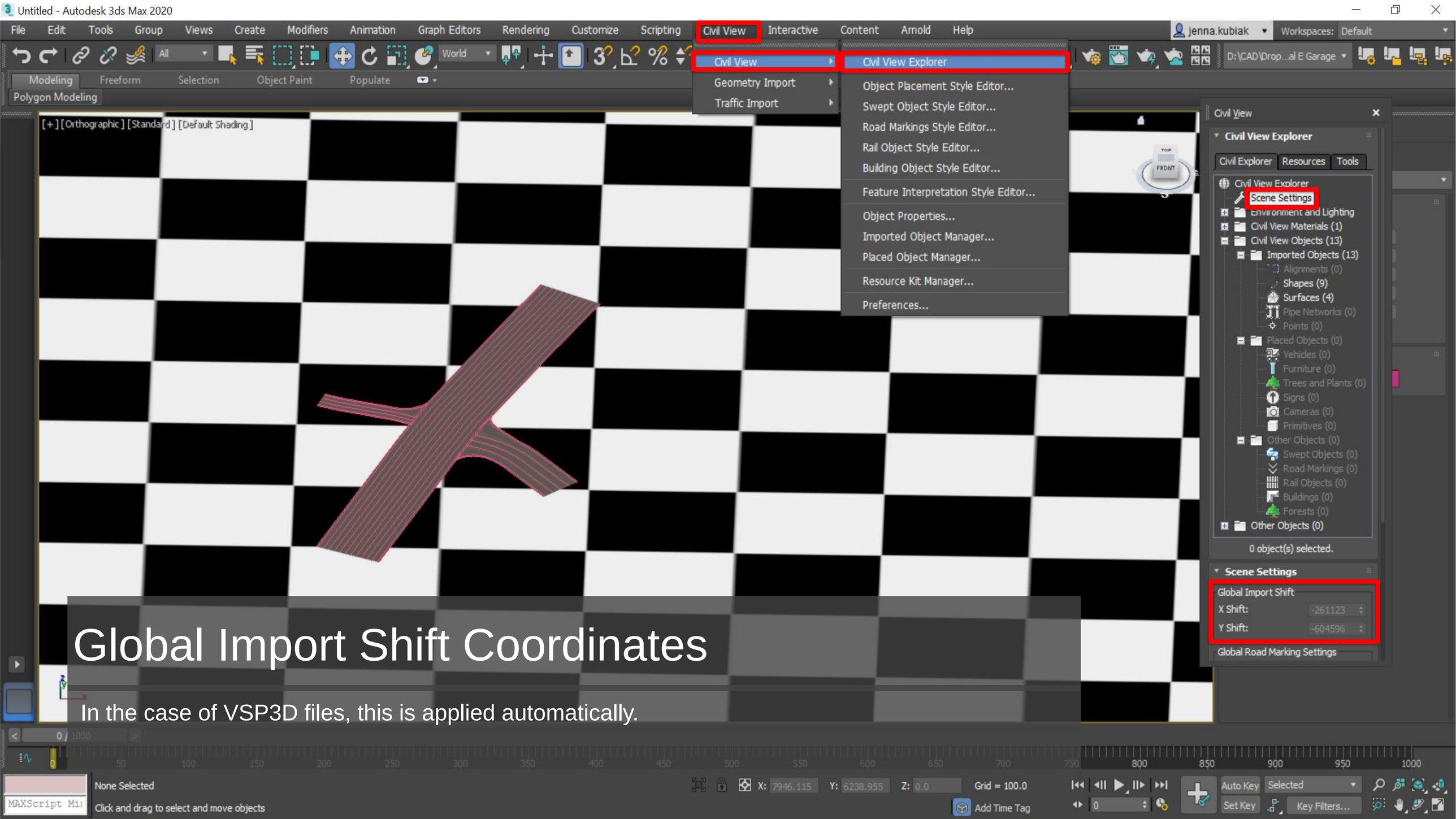

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection
Polygon Modeling
Civil 3D Import Panel
Select a VSP3D File
History: S:\CAD\9020 LIBRARY\CAD MODELS
Look in: JK
Quick access
Desktop
Libraries
This PC
Network
Name
Date modified
Type
Size
Screen Shots
11/9/2019 3:27 PM
File folder
Las_Vegas_BLVD.vsp3d
11/9/2019 2:48 PM
VSP3D File
372 KB
File name: *.vsp3d
Files of type: Civil 3D VSP File (*.vsp3d)
Open
Cancel
None Selected
Click or click-and-drag to select objects
Add Time Tag
Auto Key
Set Key
Key Filters...

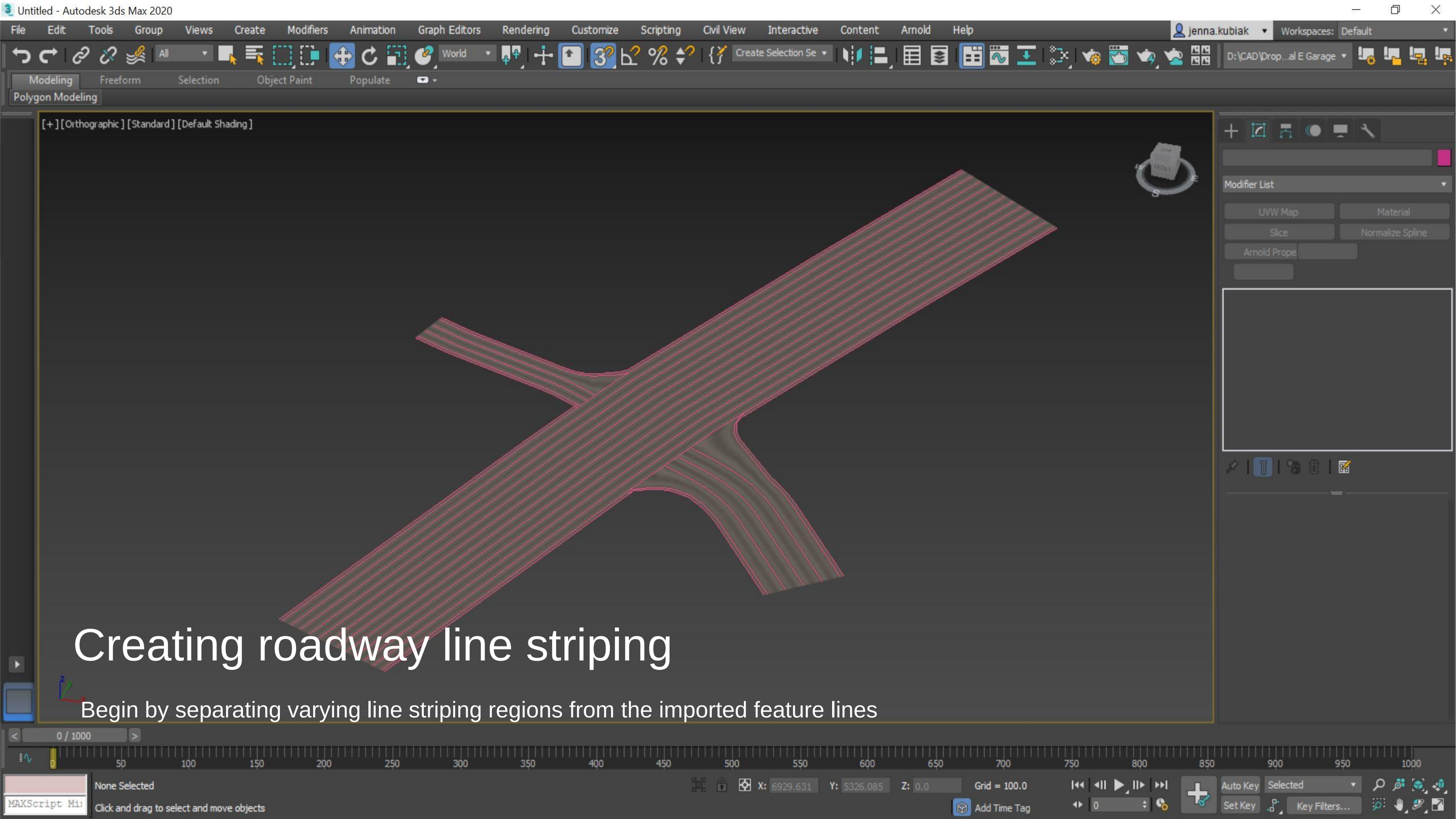

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection
Polygon Modeling
[+] [Top] [Standard] [Wireframe]
[+] [Left] [Standard] [Wireframe]
Civil 3D Import Panel [Las_Vegas_BLVD.vsp3d]
Open
Corridor Baseline
Drawing5.dwg
Point Groups [0]
Pipe Networks [0]
Surfaces [1]
Alignments [0]
Centerline Alignments [0]
Offset Alignments [0]
Corner Radius Alignments [0]
Miscellaneous Alignments [0]
Sites [0]
Corridors [3]
CR_LV_BLVD
CR_Venetian_Rd_2
CR_Venetian_Rd
Name | Object Type | Points | Splines/Faces | Extracted Link | Corridor/Site | Baseline | Region
BL_LV_BLVD | Corridor Baseline | 52 | 1 | | CR_LV_BLVD | Baseline (1) |
BL_Venetian_Rd | Corridor Baseline | 26 | 1 | | CR_Venetian_Rd | Baseline (1) |
BL_Venetian_Rd_2 | Corridor Baseline | 22 | 1 | | CR_Venetian_Rd_2 | Baseline (1) |
Crown | Corridor Feature Line | 130 | 5 | Top | CR_Venetian_Rd | Baseline (1) | Region (1)
Crown | Corridor Feature Line | 88 | 4 | Top | CR_Venetian_Rd_2 | Baseline (1) | Region (1)
Crown | Corridor Feature Line | 624 | 12 | Top | CR_LV_BLVD | Baseline (1) | Region (1)
ETW | Corridor Feature Line | 156 | 6 | Top | CR_Venetian_Rd | Baseline (1) | Region (1)
ETW | Corridor Feature Line | 110 | 5 | Top | CR_Venetian_Rd_2 | Baseline (1) | Region (1)
ETW | Corridor Feature Line | 676 | 13 | Top | CR_LV_BLVD | Baseline (1) | Region (1)
Region (1) | Corridor Surface | 182 | 300 | Top | CR_Venetian_Rd | Baseline (1) | Region (1)
Region (1) | Corridor Surface | 132 | 210 | Top | CR_Venetian_Rd_2 | Baseline (1) | Region (1)
Region (1) | Corridor Surface | 728 | 1326 | Top | CR_LV_BLVD | Baseline (1) | Region (1)
Surface_Las_Vegas | Surface | 1236 | 412
Use Feature Interpretation
Country/demo.fis
Edit Style...
New Style...
OK
Apply
Cancel
Options
Help
To continue, select a data file to be imported.
Standard Primitives
Object Type
AutoGrid
Box
Cone
Sphere
GeoSphere
Cylinder
Tube
Torus
Pyramid
Teapot
Plane
TextPlus
Name and Color
0 / 1000
None Selected
Click or click-and-drag to select objects
Grid = 10.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
Select objects to import
Feature Interpretation allows you to associate imported objects with those in the Civil View Object libraries.

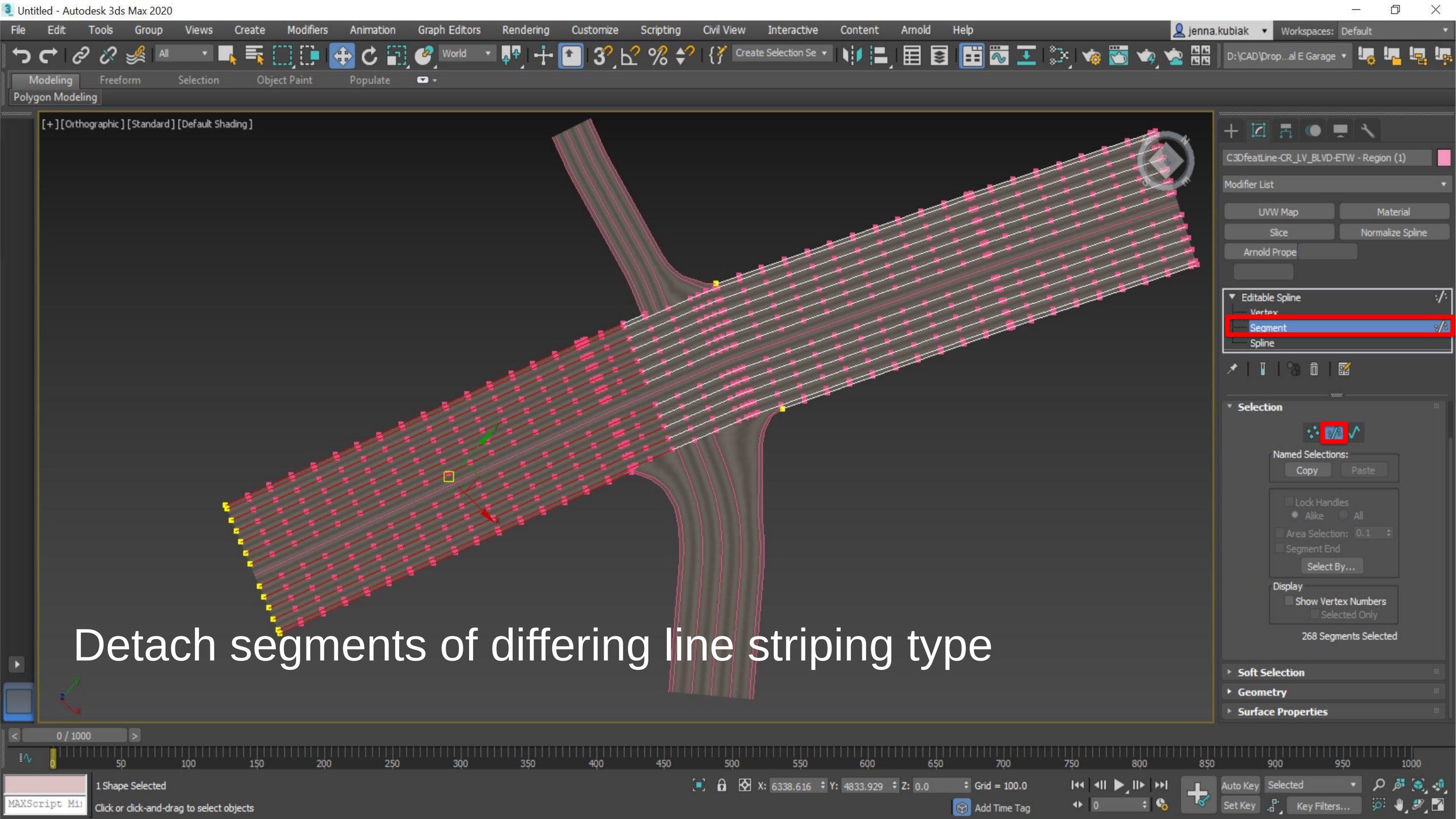


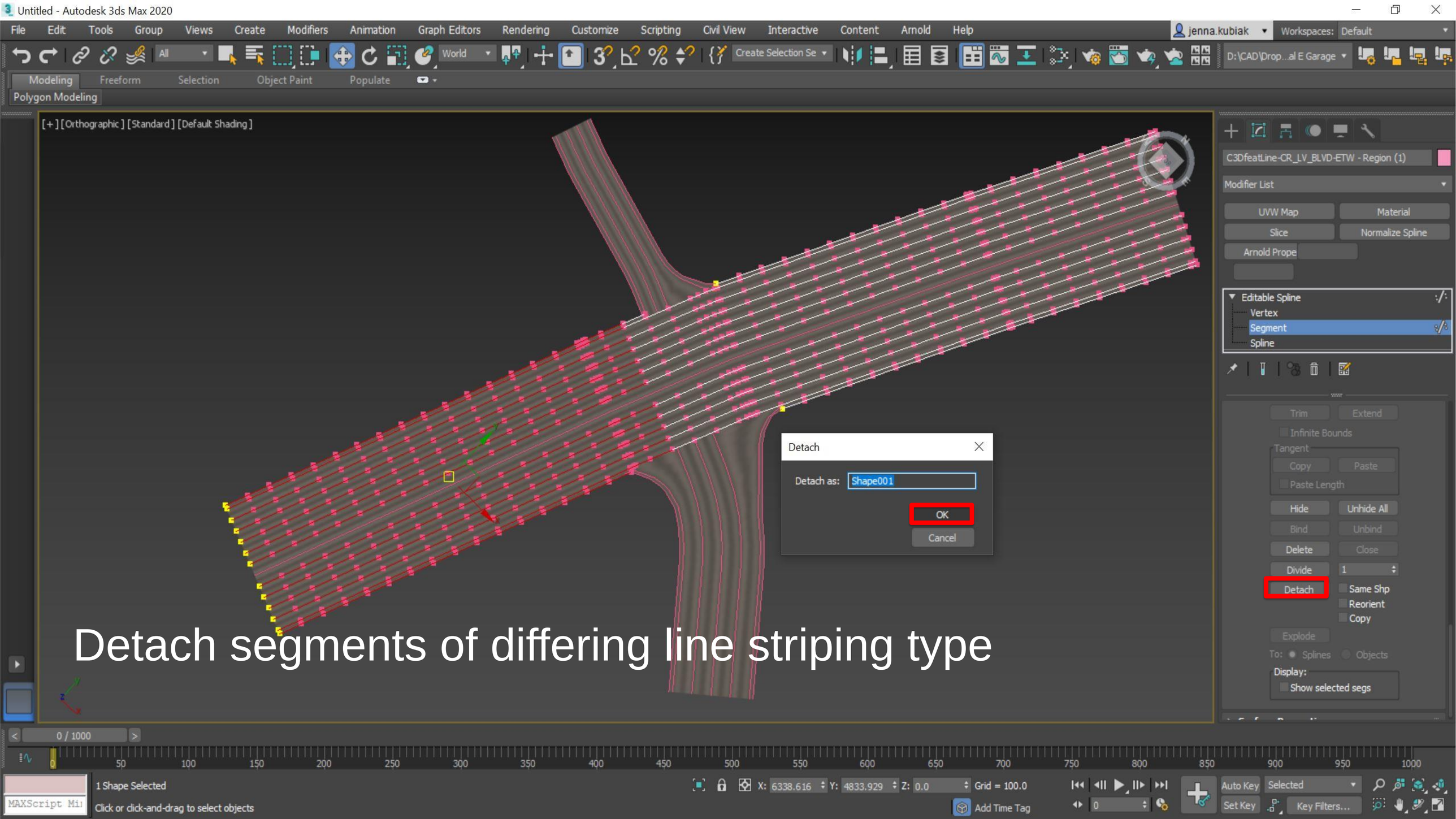
Global Import Shift Coordinates

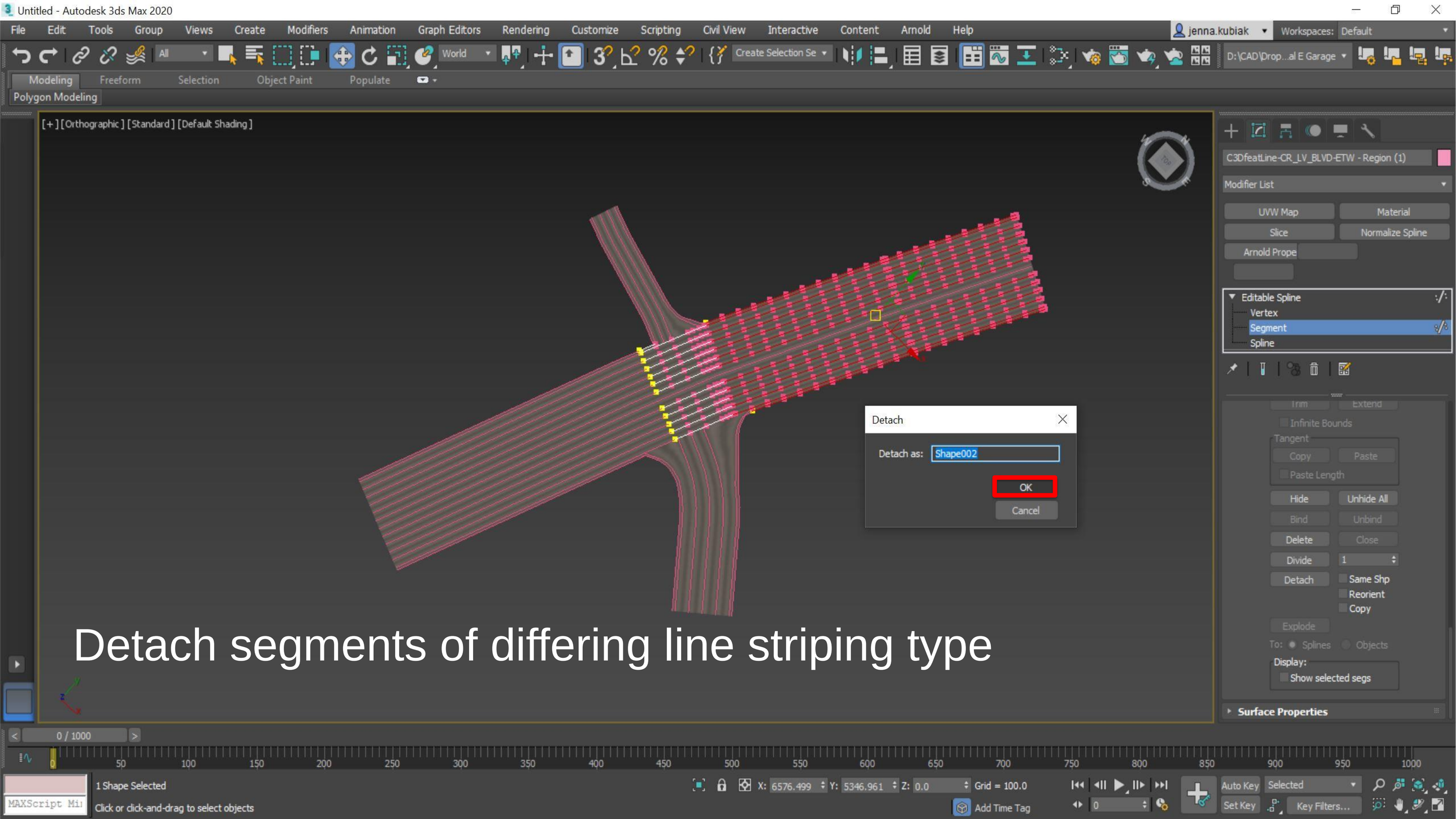
It is essential to apply an XY transformation to incoming geometry in 3DS Max to ensure the contents of a scene are located as close to the scene origin as possible. This is to avoid rounding errors and possible performance degradation when working at distances far from the origin.

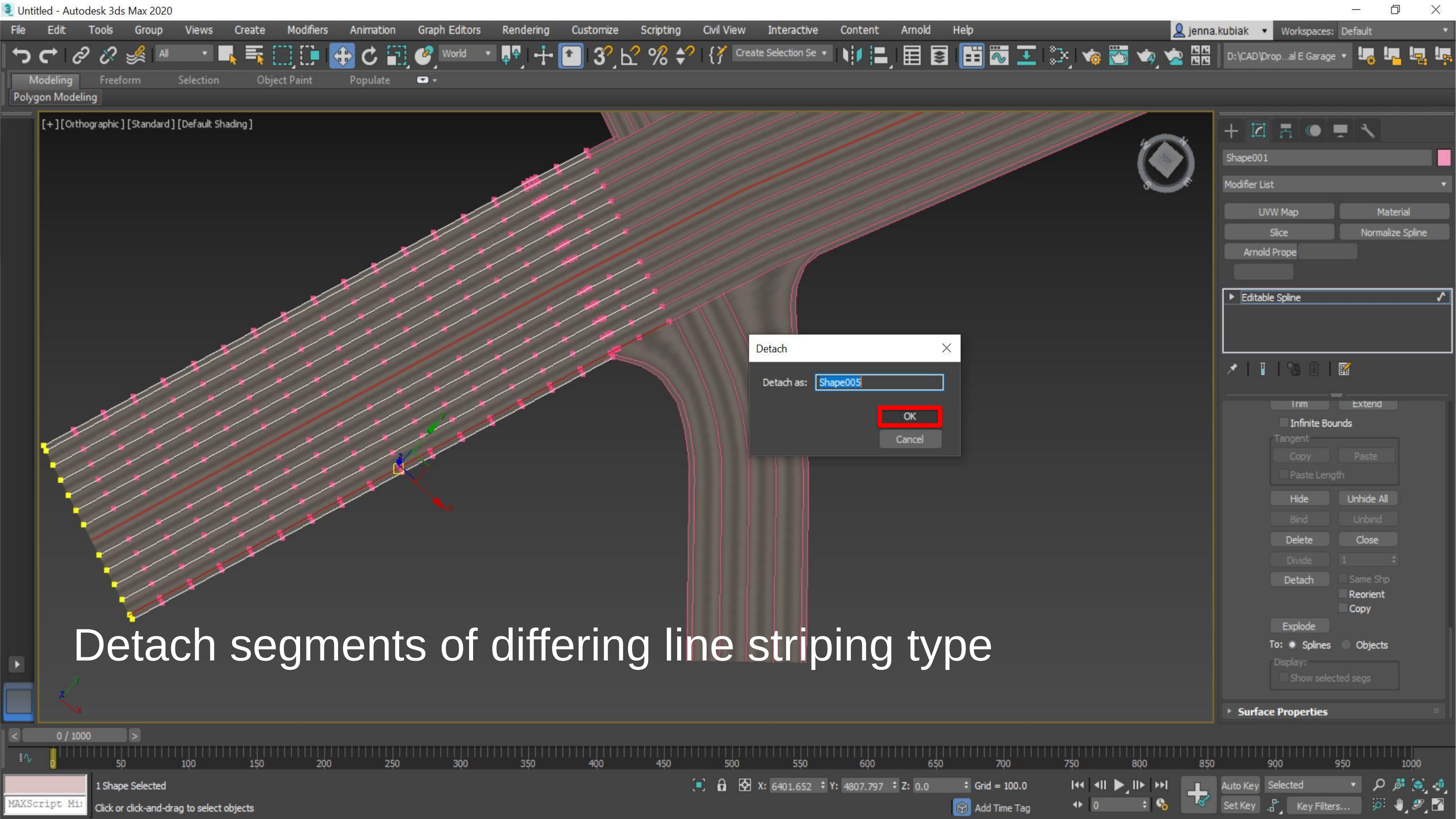

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Civil View
Geometry Import
Traffic Import
Civil View Explorer
Object Placement Style Editor...
Swept Object Style Editor...
Road Markings Style Editor...
Rail Object Style Editor...
Building Object Style Editor...
Feature Interpretation Style Editor...
Object Properties...
Imported Object Manager...
Placed Object Manager...
Resource Kit Manager...
Preferences...
Civil View
Civil View Explorer
Civil Explorer
Resources
Tools
Civil View Explorer
Scene Settings
Environment and Lighting
Civil View Materials (1)
Civil View Objects (13)
Imported Objects (13)
Alignments (0)
Shapes (9)
Surfaces (4)
Pipe Networks (0)
Points (0)
Placed Objects (0)
Vehicles (0)
Furniture (0)
Trees and Plants (0)
Signs (0)
Cameras (0)
Primitives (0)
Other Objects (0)
Swept Objects (0)
Road Markings (0)
Rail Objects (0)
Buildings (0)
Forests (0)
Other Objects (0)
0 object(s) selected.
Scene Settings
Global Import Shift
X Shift: -261123
Y Shift: -604596
Global Road Marking Settings
Global Import Shift Coordinates
In the case of VSP3D files, this is applied automatically.
None Selected
Click and drag to select and move objects
X: 7946.115 Y: 6238.955 Z: 0.0
Grid = 100.0
Add Time Tag
Auto Key Selected
Set Key Key Filters...

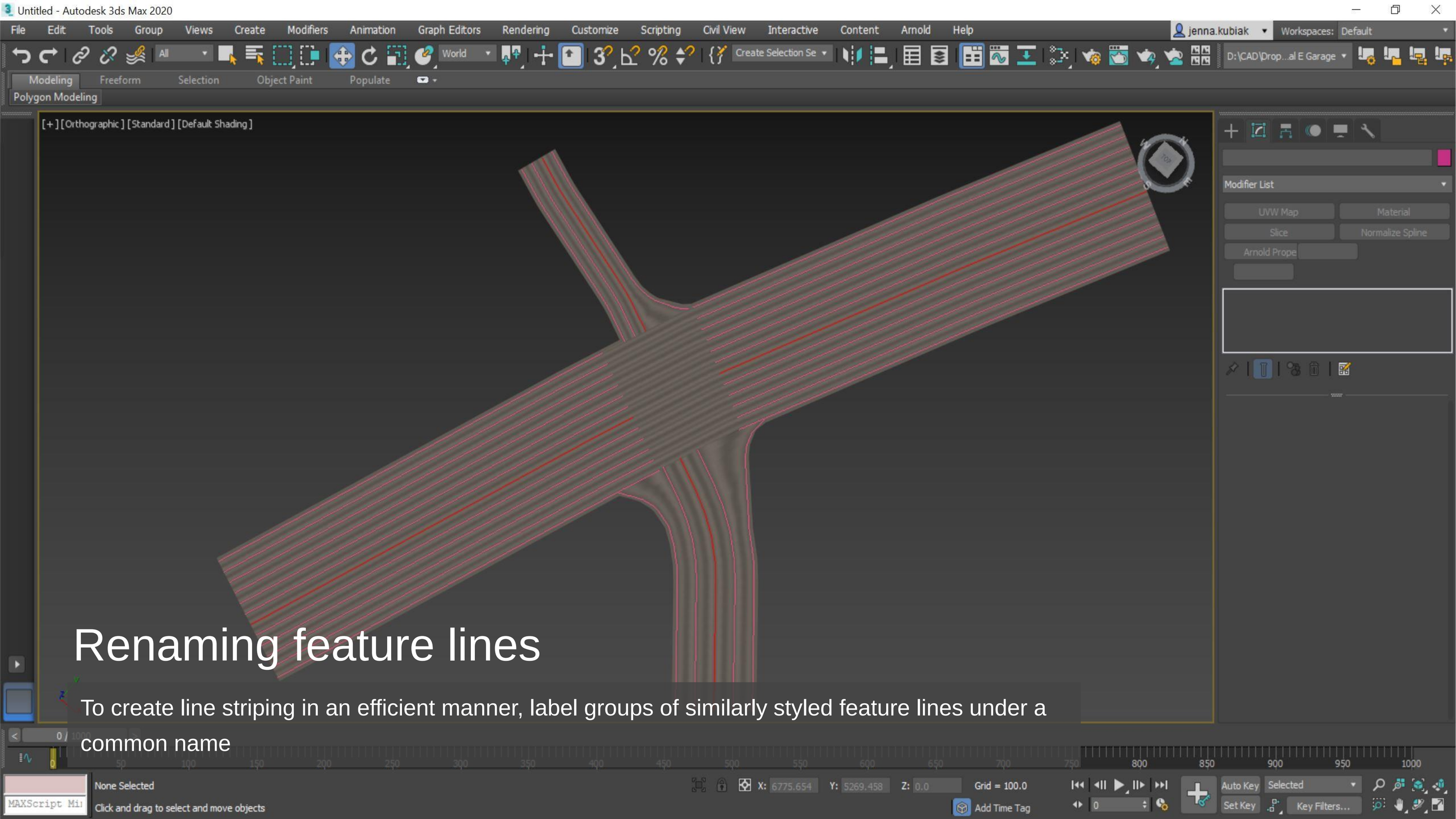

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Creating roadway line striping
Begin by separating varying line striping regions from the imported feature lines
0 / 1000
None Selected
Click and drag to select and move objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

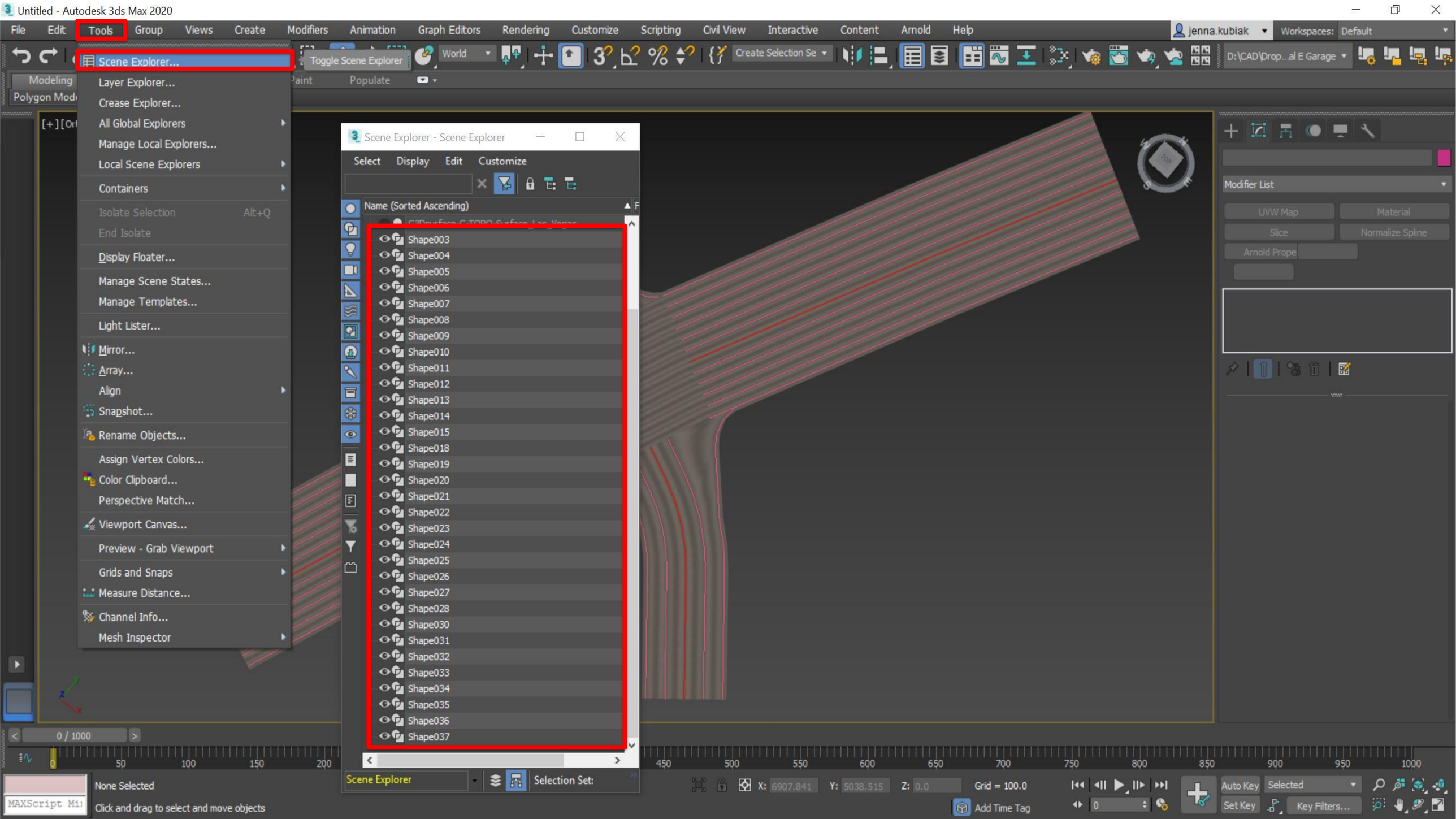

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
C3DfeatLine-CR_LV_BLVD-ETW - Region (1)
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Spline
Vertex
Segment
Spline
Selection
Named Selections:
Copy
Paste
Lock Handles
Alike
All
Area Selection:
Segment End
Select By...
Display
Show Vertex Numbers
Selected Only
268 Segments Selected
Soft Selection
Geometry
Surface Properties
Detach segments of differing line striping type
0 / 1000
1 Shape Selected
Click or click-and-drag to select objects
X: 6338.616
Y: 4833.929
Z: 0.0
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
MAXScript Mi

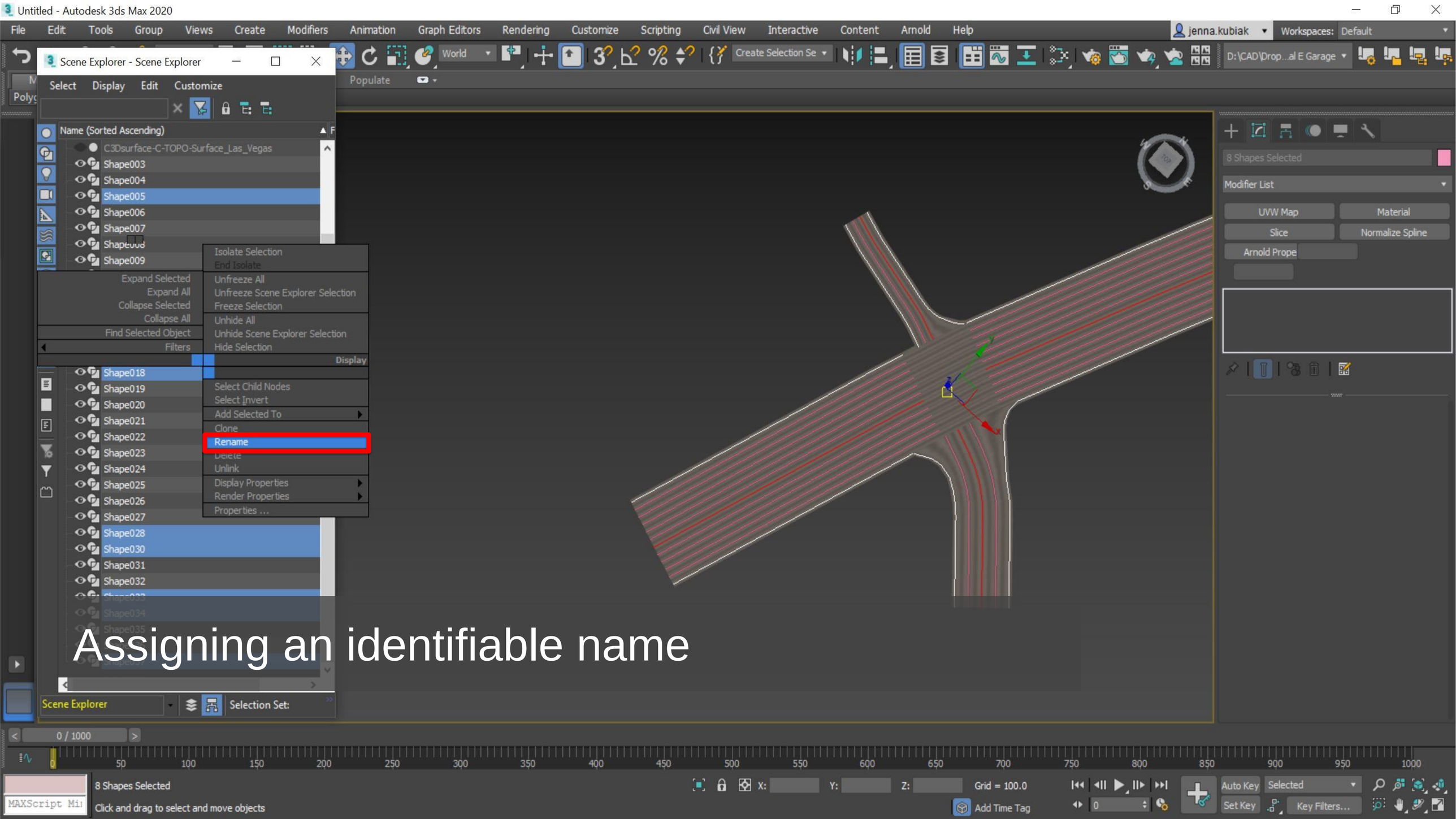

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
C3DfeatLine-CR_LV_BLVD-ETW - Region (1)
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Spline
Vertex
Segment
Spline
Trim
Extend
Infinite Bounds
Tangent
Copy
Paste
Paste Length
Hide
Unhide All
Bind
Unbind
Delete
Close
Divide
1
Detach
Same Shp
Reorient
Copy
Explode
To: Splines Objects
Display:
Show selected segs
Detach
Detach as: Shape001
OK
Cancel
Detach segments of differing line striping type
0 / 1000
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000
1 Shape Selected
Click or click-and-drag to select objects
X: 6338.616 Y: 4833.929 Z: 0.0 Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
MAXScript Mi

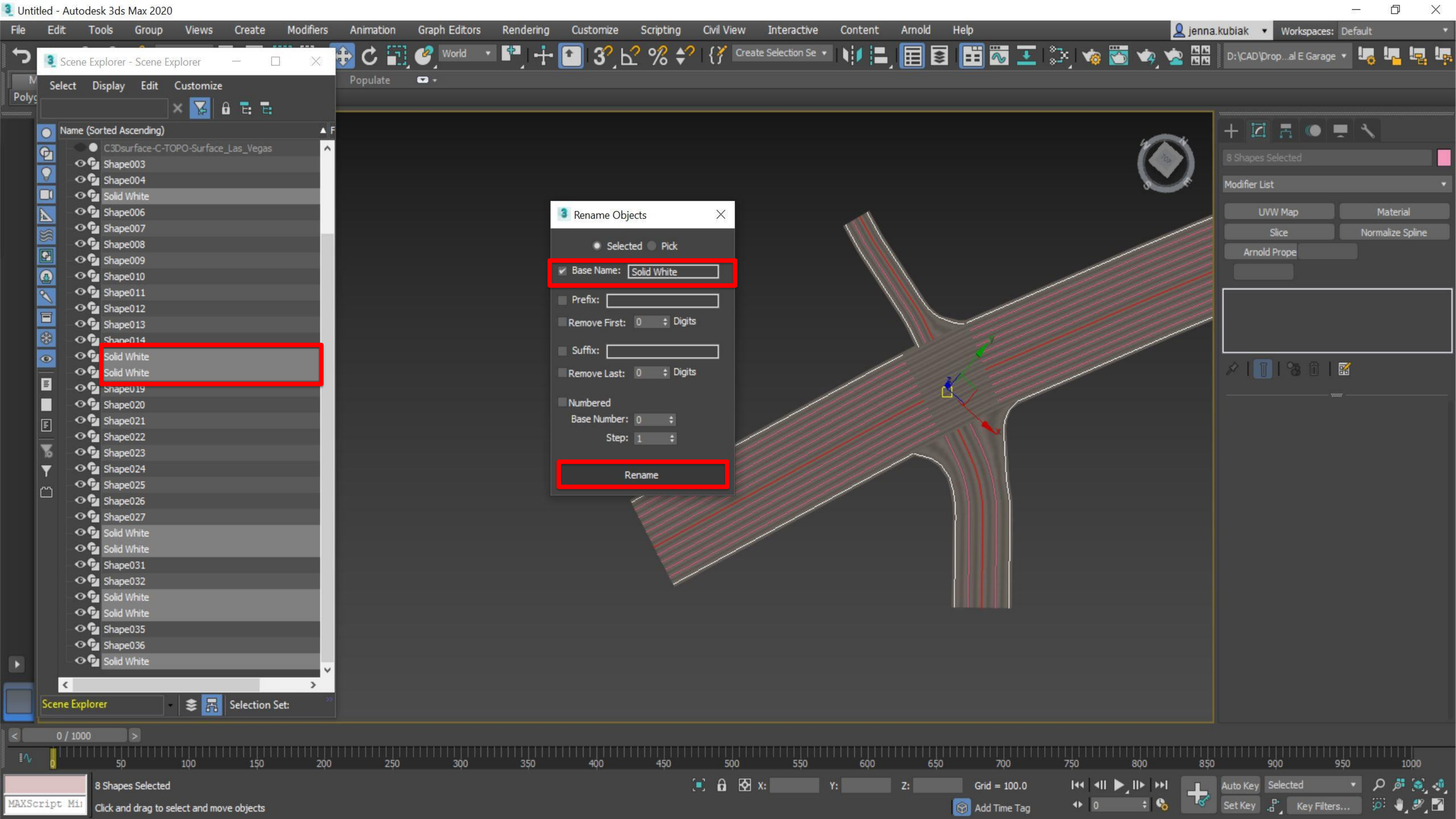

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
C3DfeatLine-CR_LV_BLVD-ETW - Region (1)
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Spline
Vertex
Segment
Spline
Detach
Detach as: Shape002
OK
Cancel
Infinite Bounds
Tangent
Copy
Paste
Paste Length
Hide
Unhide All
Bind
Unbind
Delete
Close
Divide
Detach
Same Shp
Reorient
Copy
Explode
To: Splines Objects
Display:
Show selected segs
Surface Properties
Detach segments of differing line striping type
0 / 1000
1 Shape Selected
Click or click-and-drag to select objects
X: 6576.499 Y: 5346.961 Z: 0.0 Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
MAXScript Mi

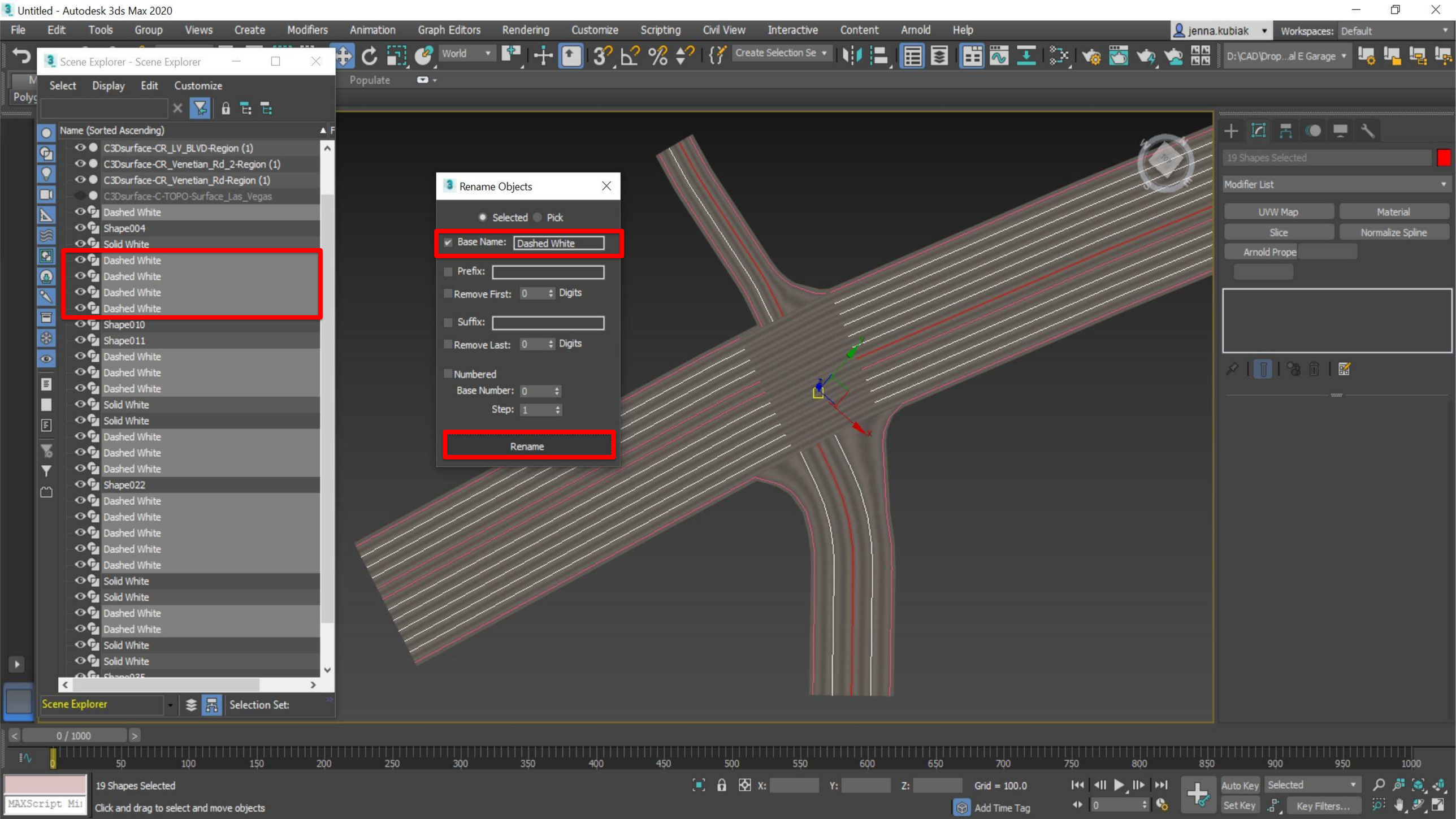

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Shape001
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Spline
Detach
Detach as: Shape005
OK
Cancel
Infinite Bounds
Tangent
Copy
Paste
Paste Length
Hide
Unhide All
Bind
Unbind
Delete
Close
Divide
Detach
Same Shp
Reorient
Copy
Explode
To: Splines Objects
Display:
Show selected segs
Surface Properties
Detach segments of differing line striping type
0 / 1000
1 Shape Selected
Click or click-and-drag to select objects
X: 6401.652 Y: 4807.797 Z: 0.0 Grid = 100.0
Add Time Tag
Auto Key Selected
Set Key Key Filters...
MAXScript Mi

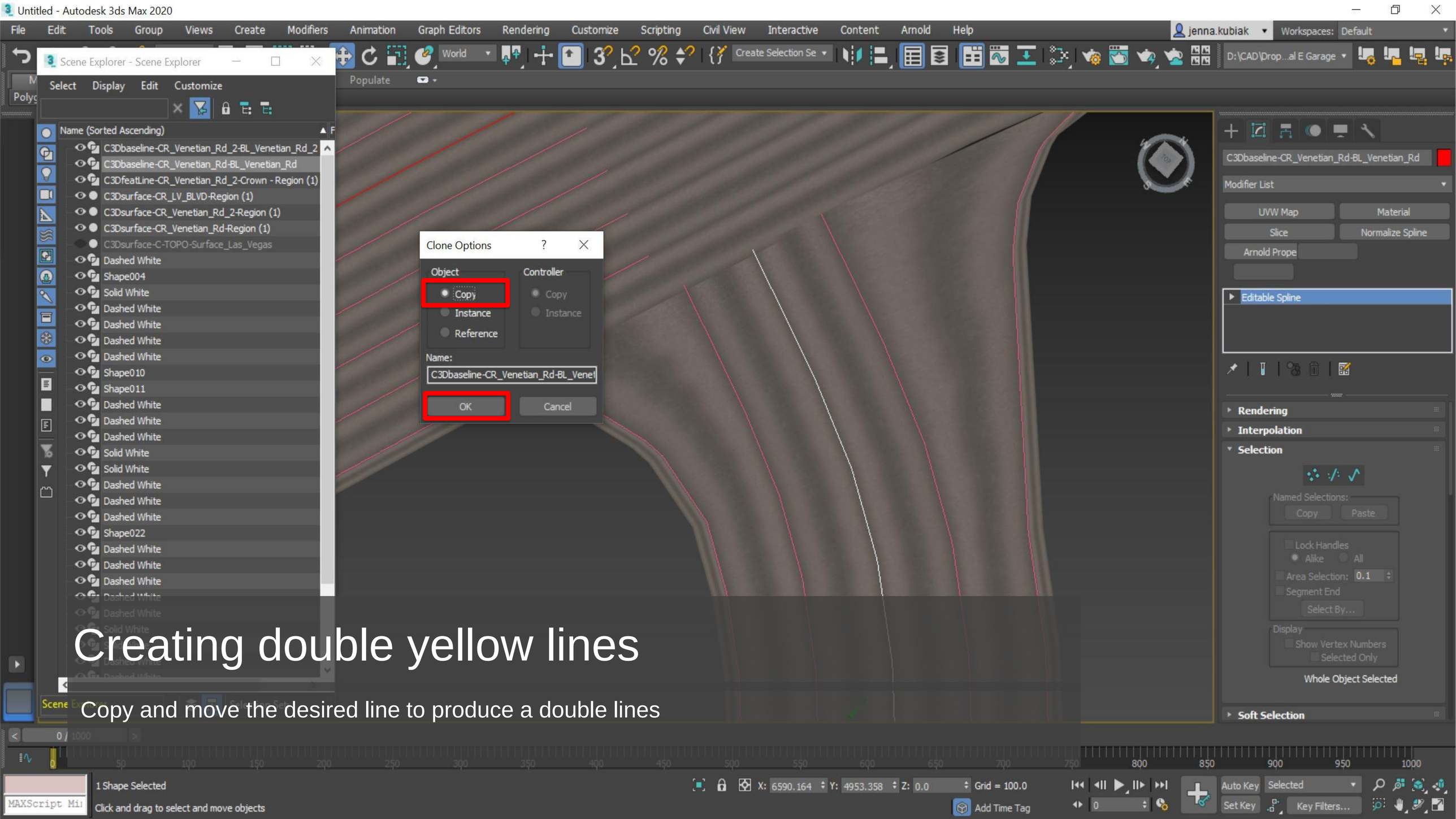

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Renaming feature lines
To create line striping in an efficient manner, label groups of similarly styled feature lines under a common name
None Selected
Click and drag to select and move objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...


Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Scene Explorer...
Layer Explorer...
Crease Explorer...
All Global Explorers
Manage Local Explorers...
Local Scene Explorers
Containers
Isolate Selection Alt+Q
End Isolate
Display Floater...
Manage Scene States...
Manage Templates...
Light Lister...
Mirror...
Array...
Align
Snapshot...
Rename Objects...
Assign Vertex Colors...
Color Clipboard...
Perspective Match...
Viewport Canvas...
Preview - Grab Viewport
Grids and Snaps
Measure Distance...
Channel Info...
Mesh Inspector
Toggle Scene Explorer
Modeling
Polygon Mod
Paint
Populate
Scene Explorer - Scene Explorer
Select Display Edit Customize
Name (Sorted Ascending)
Shape003
Shape004
Shape005
Shape006
Shape007
Shape008
Shape009
Shape010
Shape011
Shape012
Shape013
Shape014
Shape015
Shape018
Shape019
Shape020
Shape021
Shape022
Shape023
Shape024
Shape025
Shape026
Shape027
Shape028
Shape030
Shape031
Shape032
Shape033
Shape034
Shape035
Shape036
Shape037
Scene Explorer
Selection Set:
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
0 / 1000
None Selected
Click and drag to select and move objects
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...


Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Scene Explorer - Scene Explorer
Select Display Edit Customize
Name (Sorted Ascending)
C3Dsurface-C-TOPO-Surface_Las_Vegas
Shape003
Shape004
Shape005
Shape006
Shape007
Shape009
Isolate Selection
End Isolate
Unfreeze All
Unfreeze Scene Explorer Selection
Freeze Selection
Unhide All
Unhide Scene Explorer Selection
Hide Selection
Expand Selected
Expand All
Collapse Selected
Collapse All
Find Selected Object
Filters
Display
Shape018
Shape019
Shape020
Shape021
Shape022
Shape023
Shape024
Shape025
Shape026
Shape027
Shape028
Shape030
Shape031
Shape032
Select Child Nodes
Select Invert
Add Selected To
Clone
Rename
Delete
Unlink
Display Properties
Render Properties
Properties ...
Scene Explorer
Selection Set:
8 Shapes Selected
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Assigning an identifiable name
0 / 1000
8 Shapes Selected
Click and drag to select and move objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

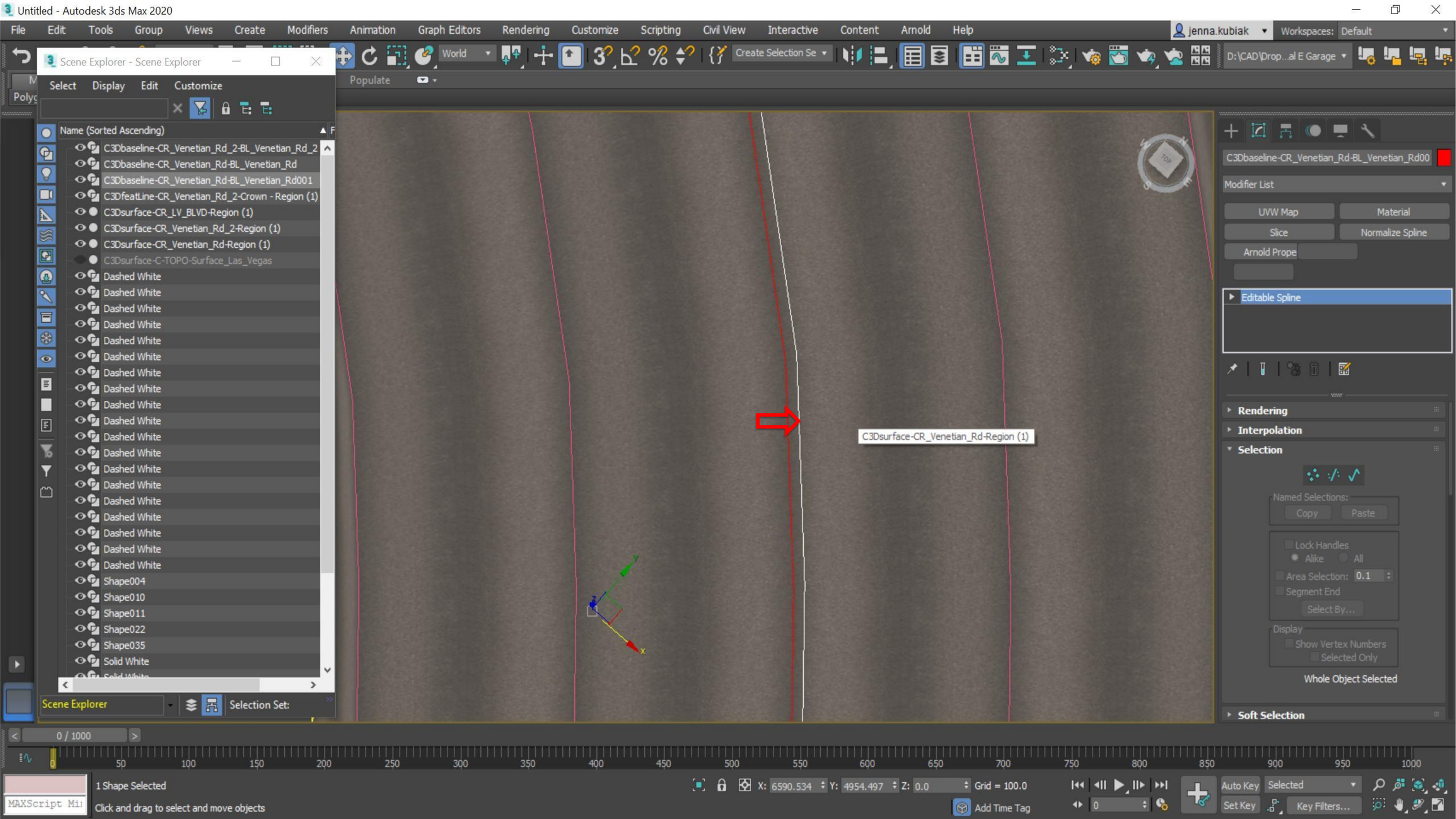

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Scene Explorer - Scene Explorer
Select Display Edit Customize
Name (Sorted Ascending)
C3Dsurface-C-TOPO-Surface_Las_Vegas
Shape003
Shape004
Solid White
Shape006
Shape007
Shape008
Shape009
Shape010
Shape011
Shape012
Shape013
Shape014
Solid White
Solid White
Shape019
Shape020
Shape021
Shape022
Shape023
Shape024
Shape025
Shape026
Shape027
Solid White
Solid White
Shape031
Shape032
Solid White
Solid White
Shape035
Shape036
Solid White
Scene Explorer
Selection Set:
Rename Objects
Selected
Pick
Base Name:
Solid White
Prefix:
Remove First:
Digits
Suffix:
Remove Last:
Digits
Numbered
Base Number:
Step:
Rename
8 Shapes Selected
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
0 / 1000
8 Shapes Selected
Click and drag to select and move objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

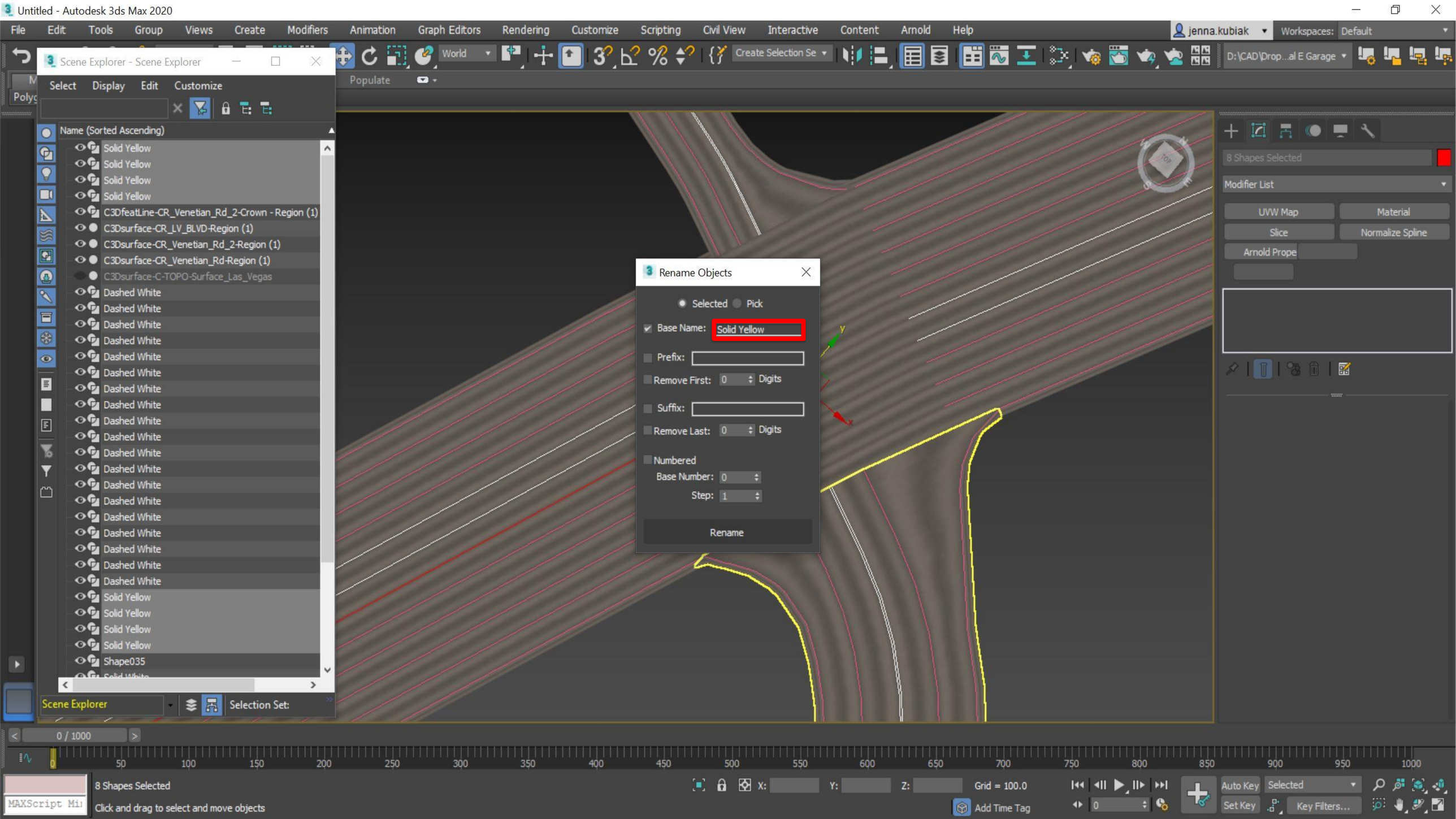

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Scene Explorer - Scene Explorer
Select Display Edit Customize
Name (Sorted Ascending)
C3Dsurface-CR_LV_BLVD-Region (1)
C3Dsurface-CR_Venetian_Rd_2-Region (1)
C3Dsurface-CR_Venetian_Rd-Region (1)
C3Dsurface-C-TOPO-Surface_Las_Vegas
Dashed White
Shape004
Solid White
Dashed White
Dashed White
Dashed White
Dashed White
Shape010
Shape011
Dashed White
Dashed White
Dashed White
Solid White
Solid White
Dashed White
Dashed White
Dashed White
Shape022
Dashed White
Dashed White
Dashed White
Dashed White
Dashed White
Solid White
Solid White
Dashed White
Dashed White
Solid White
Solid White
Scene Explorer
Selection Set:
Rename Objects
Selected
Pick
Base Name:
Dashed White
Prefix:
Remove First:
Digits
Suffix:
Remove Last:
Digits
Numbered
Base Number:
Step:
Rename
19 Shapes Selected
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
0 / 1000
19 Shapes Selected
Click and drag to select and move objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

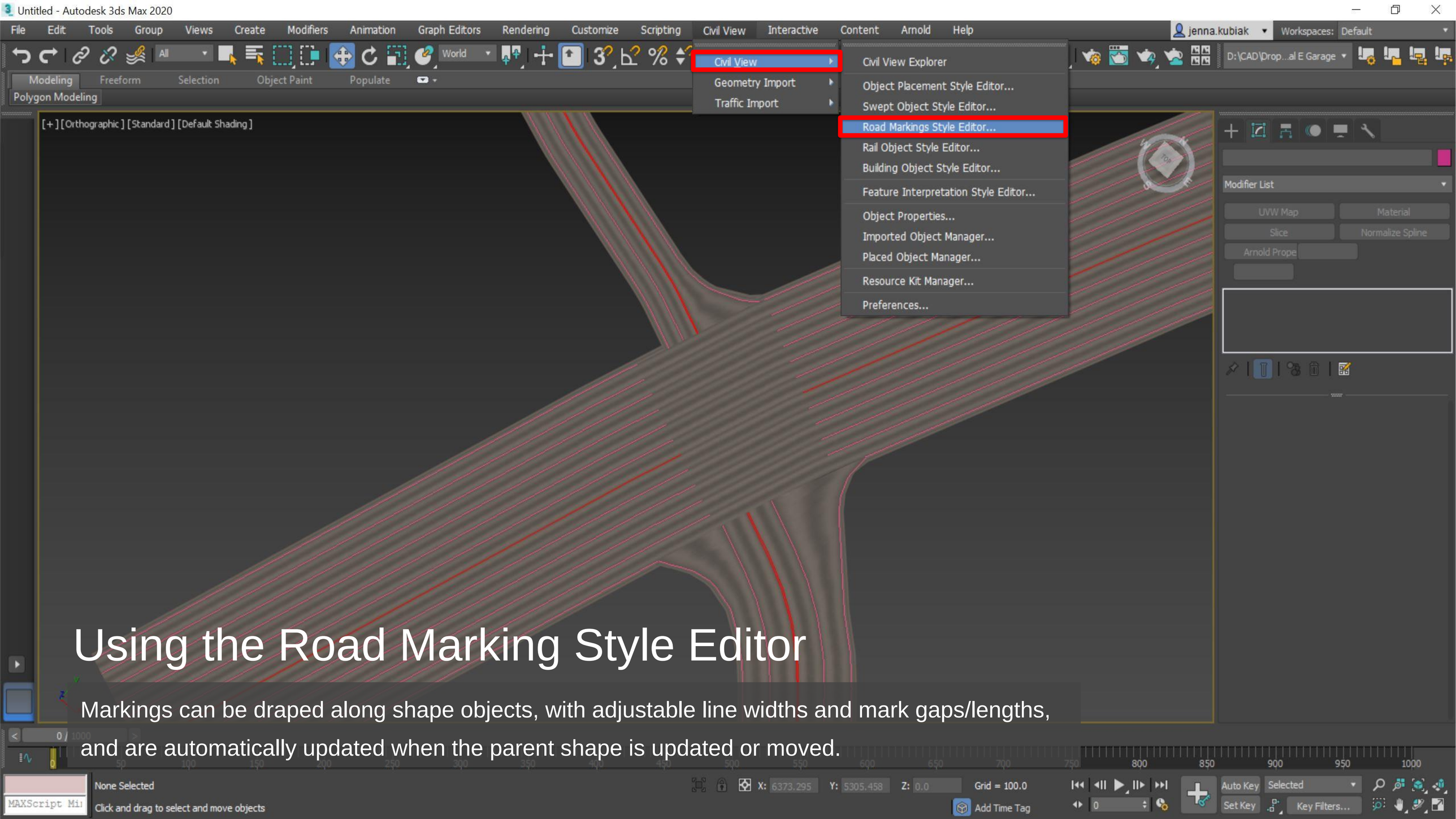


Creating double yellow lines

Copy and move the desired line to produce a double lines

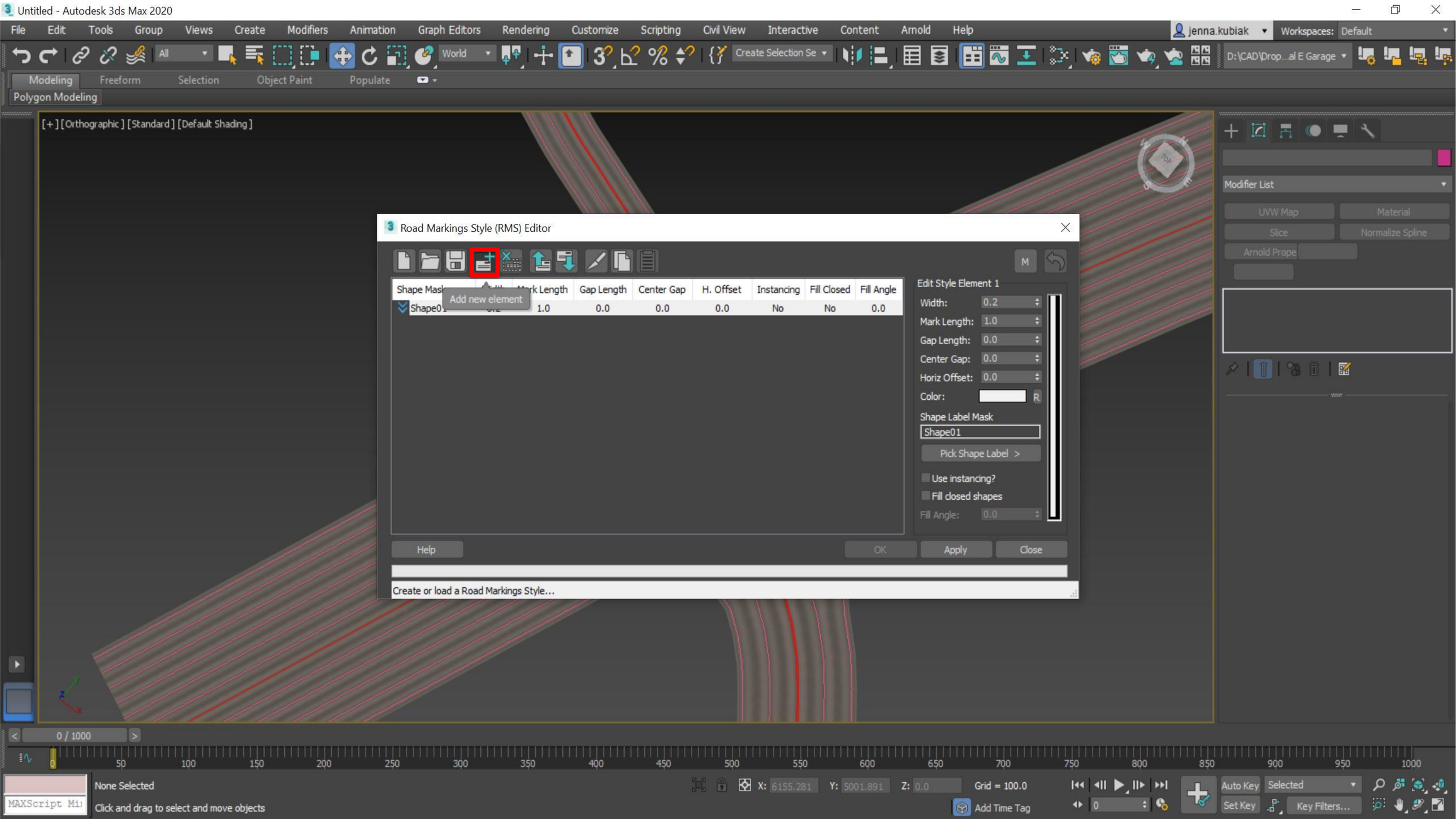

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Scene Explorer - Scene Explorer
Select Display Edit Customize
Name (Sorted Ascending)
C3Dbaseline-CR_Venetian_Rd_2-BL_Venetian_Rd_2
C3Dbaseline-CR_Venetian_Rd-BL_Venetian_Rd
C3Dbaseline-CR_Venetian_Rd-BL_Venetian_Rd001
C3DfeatLine-CR_Venetian_Rd_2-Crown - Region (1)
C3Dsurface-CR_LV_BLVD-Region (1)
C3Dsurface-CR_Venetian_Rd_2-Region (1)
C3Dsurface-CR_Venetian_Rd-Region (1)
C3Dsurface-C-TOPO-Surface_Las_Vegas
Dashed White
Shape004
Shape010
Shape011
Shape022
Shape035
Solid White
Scene Explorer
Selection Set:
Populate
C3Dsurface-CR_Venetian_Rd-Region (1)
C3Dbaseline-CR_Venetian_Rd-BL_Venetian_Rd00
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Spline
Rendering
Interpolation
Selection
Named Selections:
Copy
Paste
Lock Handles
Alike
All
Area Selection: 0.1
Segment End
Select By...
Display
Show Vertex Numbers
Selected Only
Whole Object Selected
Soft Selection
0 / 1000
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
1 Shape Selected
Click and drag to select and move objects
X: 6590.534
Y: 4954.497
Z: 0.0
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
MAXScript Mi

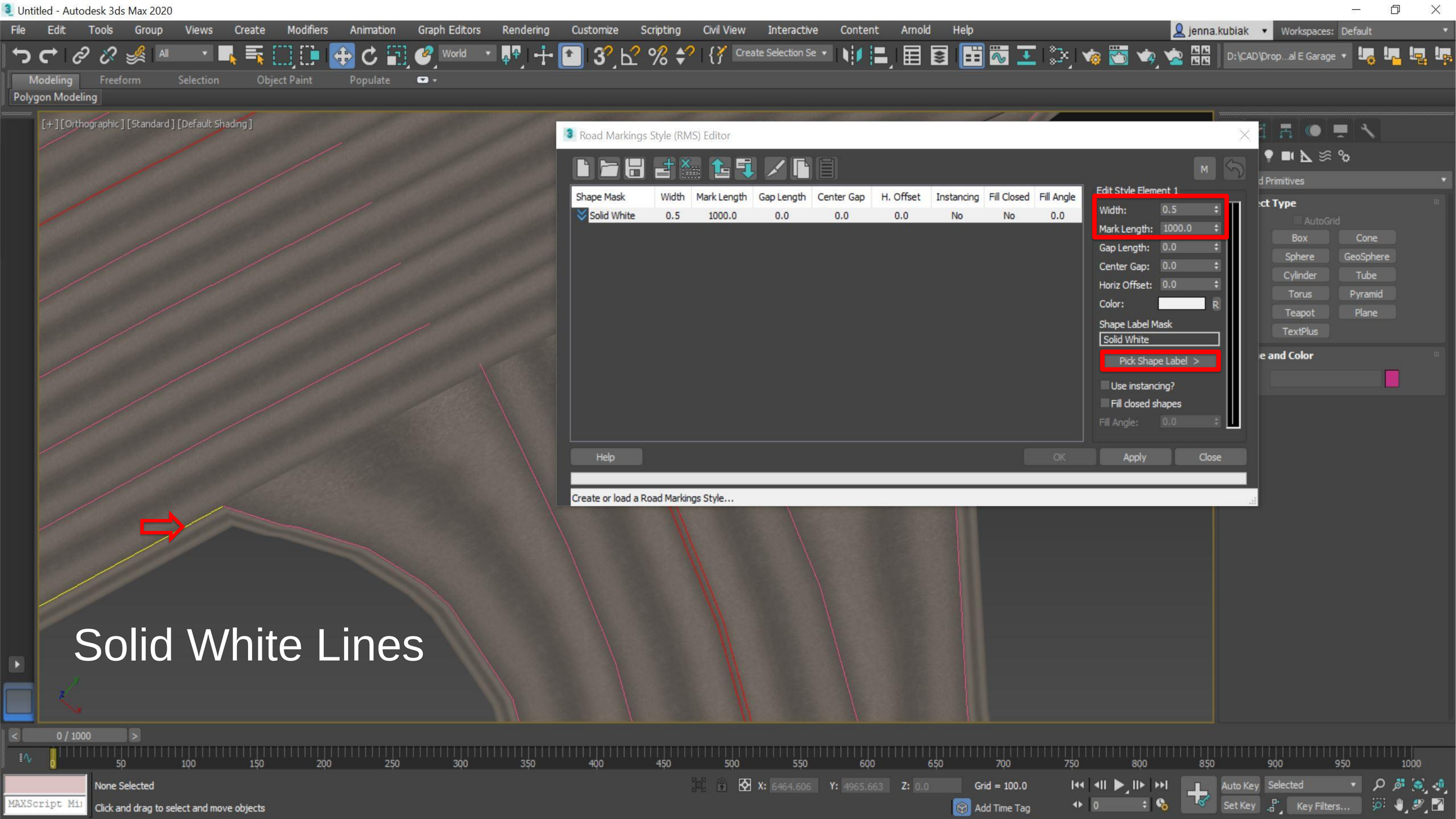

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Scene Explorer - Scene Explorer
Select Display Edit Customize
Name (Sorted Ascending)
Solid Yellow
C3DfeatLine-CR_Venetian_Rd_2-Crown - Region (1)
C3Dsurface-CR_LV_BLVD-Region (1)
C3Dsurface-CR_Venetian_Rd_2-Region (1)
C3Dsurface-CR_Venetian_Rd-Region (1)
C3Dsurface-C-TOPO-Surface_Las_Vegas
Dashed White
Shape035
Scene Explorer
Selection Set:
Rename Objects
Selected
Pick
Base Name:
Solid Yellow
Prefix:
Remove First:
Digits
Suffix:
Remove Last:
Numbered
Base Number:
Step:
Rename
8 Shapes Selected
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
0 / 1000
8 Shapes Selected
Click and drag to select and move objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

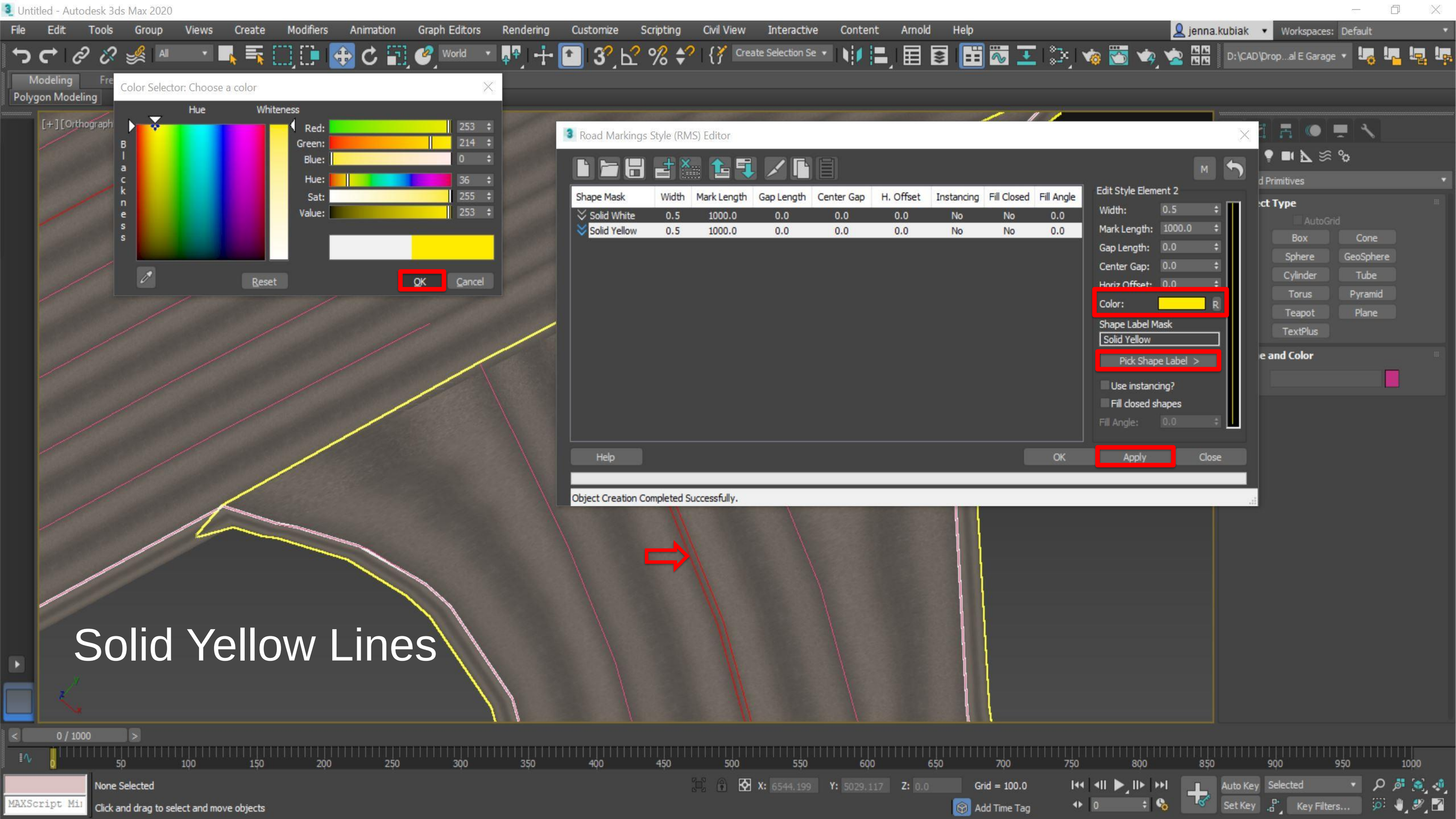


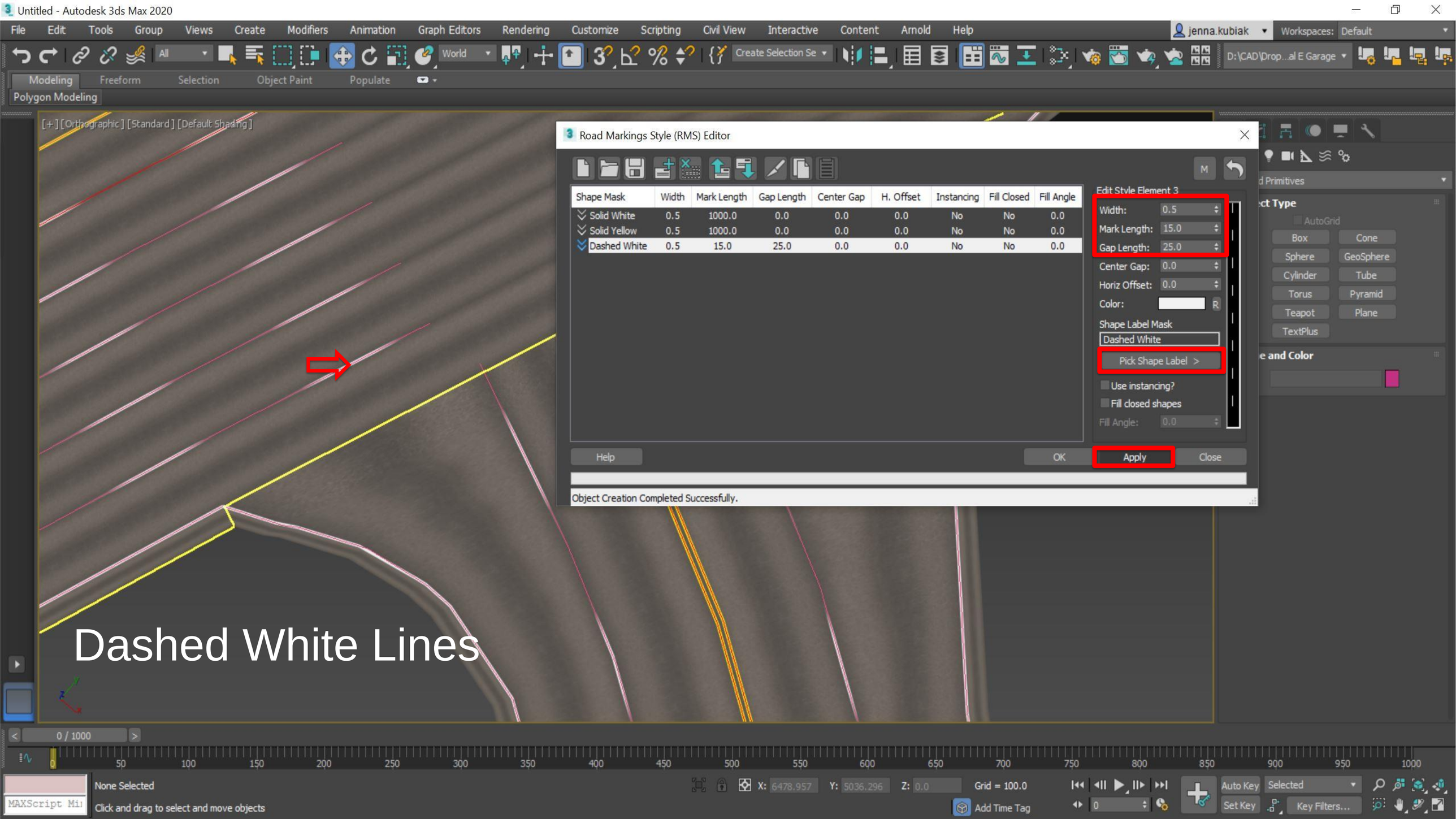
Using the Road Marking Style Editor

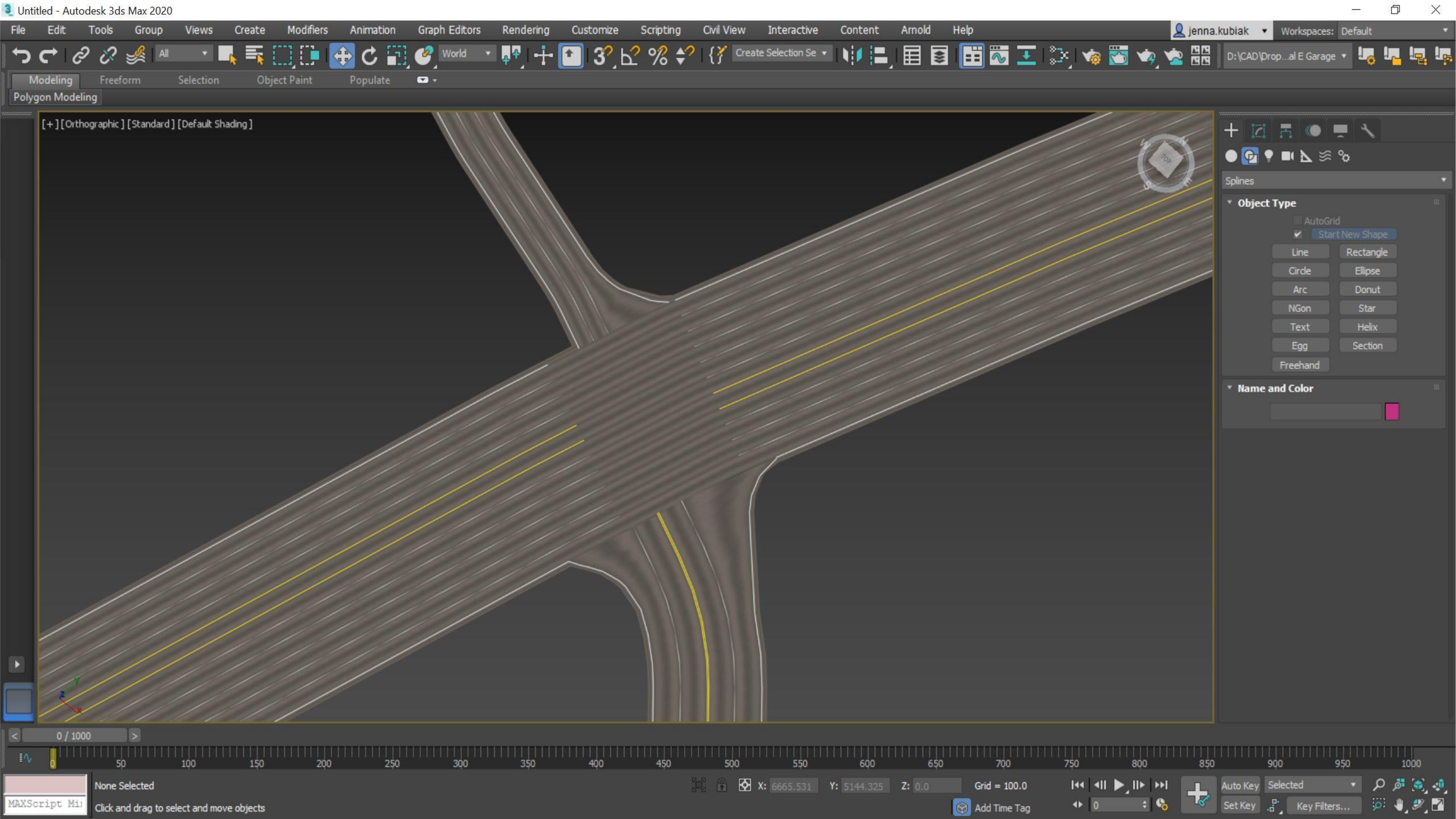
Markings can be draped along shape objects, with adjustable line widths and mark gaps/lengths, and are automatically updated when the parent shape is updated or moved.

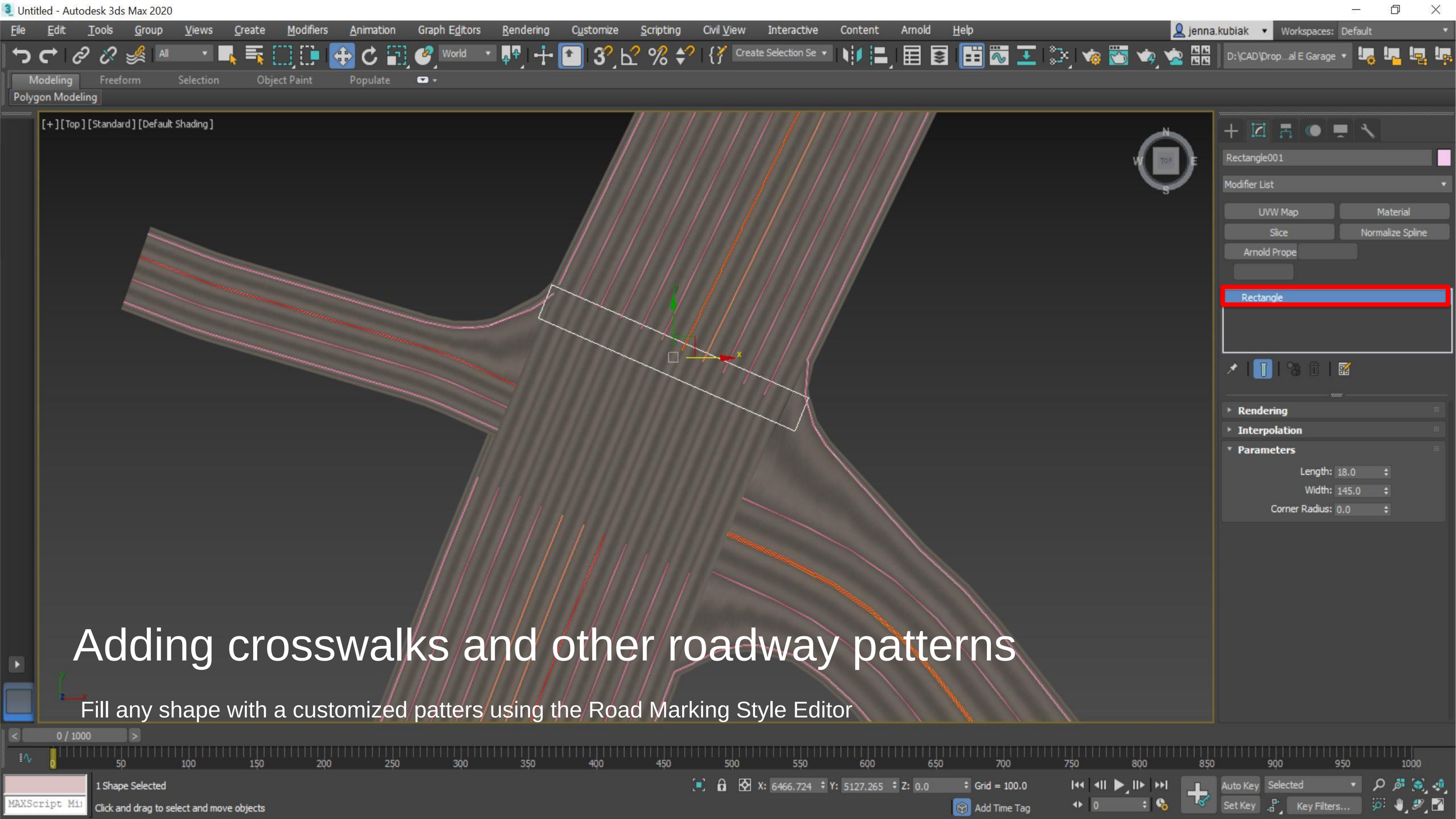

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Road Markings Style (RMS) Editor
Add new element
Shape Mask
Mark Length
Gap Length
Center Gap
H. Offset
Instancing
Fill Closed
Fill Angle
Shape01
1.0
0.0
0.0
0.0
No
No
0.0
Edit Style Element 1
Width: 0.2
Mark Length: 1.0
Gap Length: 0.0
Center Gap: 0.0
Horiz Offset: 0.0
Color:
Shape Label Mask
Shape01
Pick Shape Label >
Use instancing?
Fill closed shapes
Fill Angle: 0.0
Help
OK
Apply
Close
Create or load a Road Markings Style...
Modifier List
UVW Map
Material
Slice
Normalize Spline
0 / 1000
None Selected
Click and drag to select and move objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

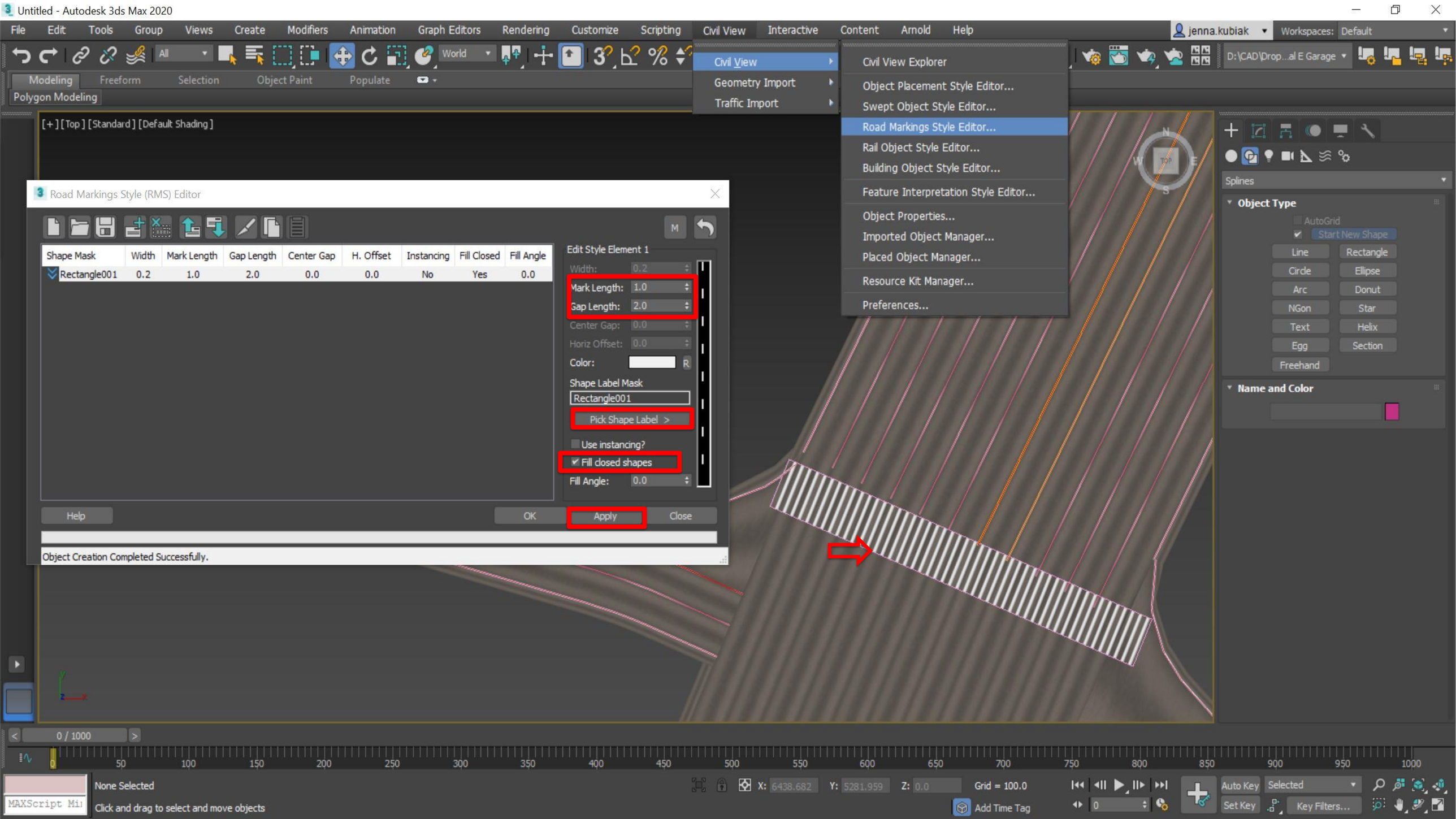

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Road Markings Style (RMS) Editor
Shape Mask | Width | Mark Length | Gap Length | Center Gap | H. Offset | Instancing | Fill Closed | Fill Angle
Solid White | 0.5 | 1000.0 | 0.0 | 0.0 | 0.0 | No | No | 0.0
Edit Style Element 1
Width: 0.5
Mark Length: 1000.0
Gap Length: 0.0
Center Gap: 0.0
Horiz Offset: 0.0
Color:
Shape Label Mask
Solid White
Pick Shape Label >
Use instancing?
Fill closed shapes
Fill Angle: 0.0
Help
OK
Apply
Close
Create or load a Road Markings Style...
Solid White Lines
None Selected
Click and drag to select and move objects
Add Time Tag
Auto Key
Set Key
Key Filters...

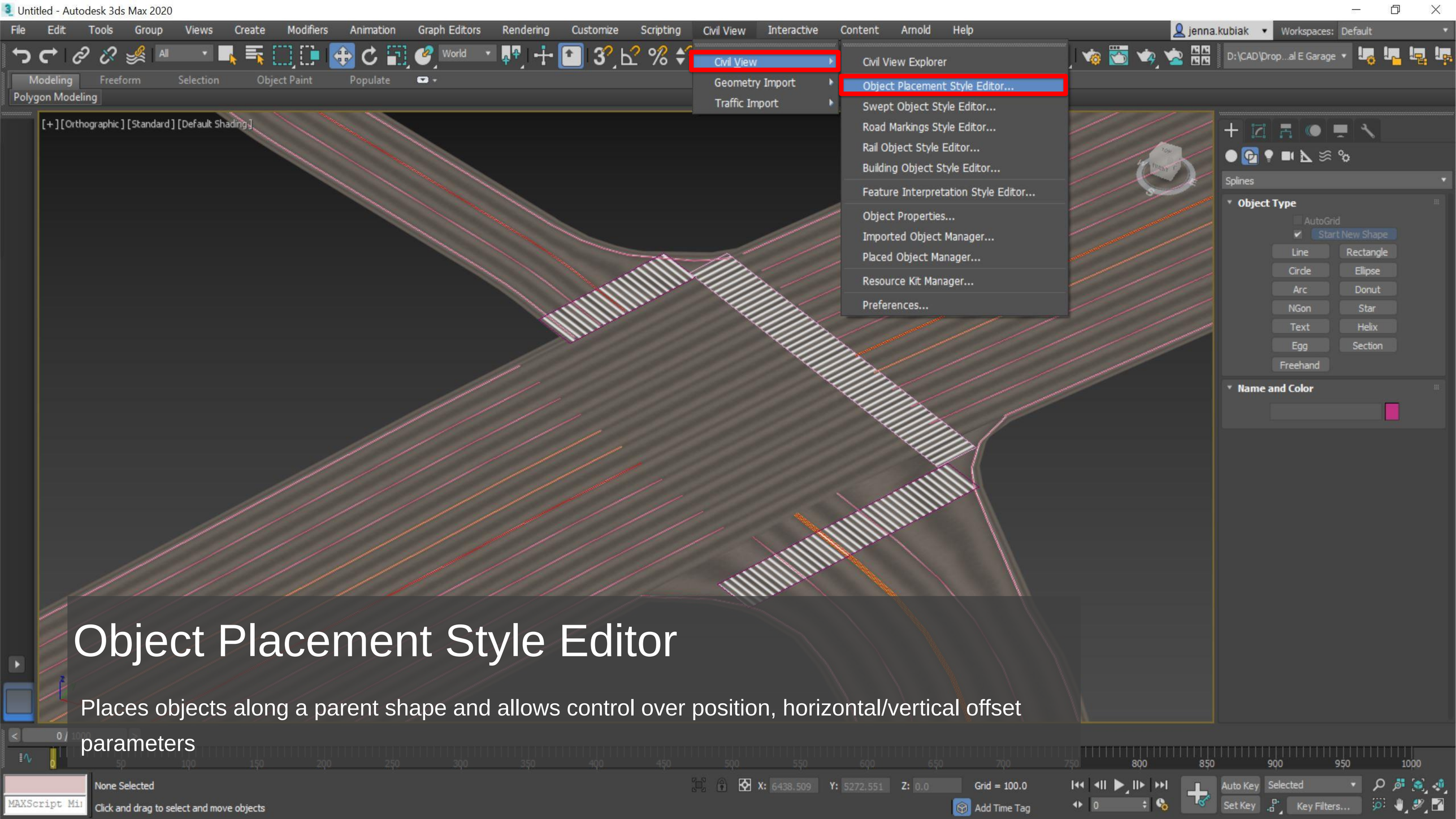

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling
Polygon Modeling
Color Selector: Choose a color
Hue
Whiteness
Blackness
Red: 253
Green: 214
Blue: 0
Hue: 36
Sat: 255
Value: 253
Reset
OK
Cancel
Road Markings Style (RMS) Editor
Shape Mask
Width
Mark Length
Gap Length
Center Gap
H. Offset
Instancing
Fill Closed
Fill Angle
Solid White 0.5 1000.0 0.0 0.0 0.0 No No 0.0
Solid Yellow 0.5 1000.0 0.0 0.0 0.0 No No 0.0
Edit Style Element 2
Width: 0.5
Mark Length: 1000.0
Gap Length: 0.0
Center Gap: 0.0
Color:
Shape Label Mask
Solid Yellow
Pick Shape Label >
Use instancing?
Fill closed shapes
Fill Angle: 0.0
Help
OK
Apply
Close
Object Creation Completed Successfully.
Box
Cone
Sphere
GeoSphere
Cylinder
Tube
Torus
Pyramid
Teapot
Plane
TextPlus
Solid Yellow Lines
None Selected
Click and drag to select and move objects
Add Time Tag
Auto Key
Set Key
Key Filters...


Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Road Markings Style (RMS) Editor
Shape Mask Width Mark Length Gap Length Center Gap H. Offset Instancing Fill Closed Fill Angle
Solid White 0.5 1000.0 0.0 0.0 0.0 No No 0.0
Solid Yellow 0.5 1000.0 0.0 0.0 0.0 No No 0.0
Dashed White 0.5 15.0 25.0 0.0 0.0 No No 0.0
Edit Style Element 3
Width: 0.5
Mark Length: 15.0
Gap Length: 25.0
Center Gap: 0.0
Horiz Offset: 0.0
Color:
Shape Label Mask
Dashed White
Pick Shape Label >
Use instancing?
Fill closed shapes
Fill Angle: 0.0
Help
OK
Apply
Close
Object Creation Completed Successfully.
Dashed White Lines
None Selected
Click and drag to select and move objects
Add Time Tag
Auto Key
Set Key
Key Filters...


Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Splines
Object Type
AutoGrid
Start New Shape
Line Rectangle
Circle Ellipse
Arc Donut
NGon Star
Text Helix
Egg Section
Freehand
Name and Color
0 / 1000
None Selected
Click and drag to select and move objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

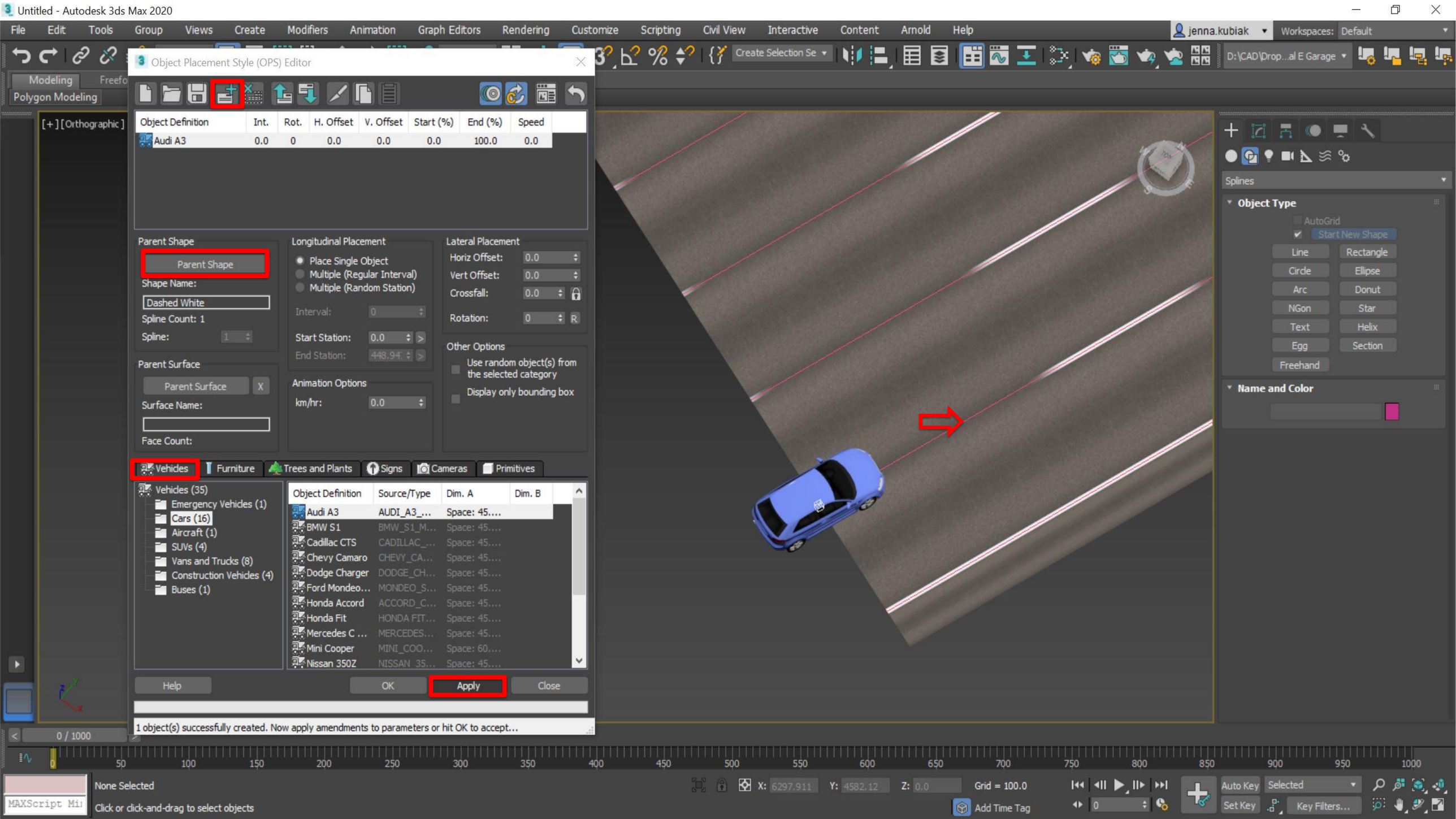

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Top] [Standard] [Default Shading]
Rectangle001
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Rectangle
Rendering
Interpolation
Parameters
Length: 18.0
Width: 145.0
Corner Radius: 0.0
Adding crosswalks and other roadway patterns
Fill any shape with a customized patters using the Road Marking Style Editor
0 / 1000
1 Shape Selected
Click and drag to select and move objects
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

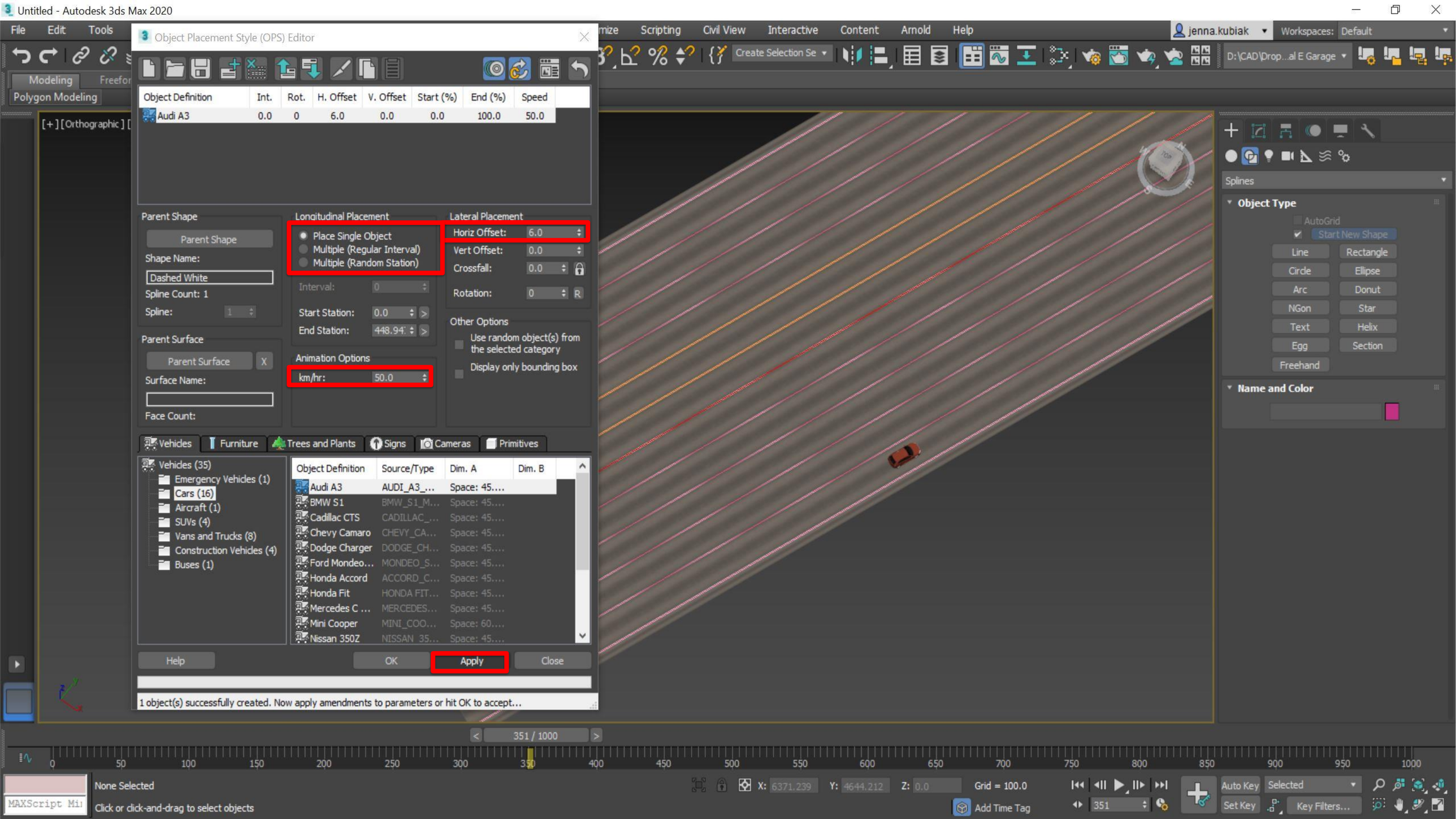

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Top] [Standard] [Default Shading]
Civil View
Geometry Import
Traffic Import
Civil View Explorer
Object Placement Style Editor...
Swept Object Style Editor...
Road Markings Style Editor...
Rail Object Style Editor...
Building Object Style Editor...
Feature Interpretation Style Editor...
Object Properties...
Imported Object Manager...
Placed Object Manager...
Resource Kit Manager...
Preferences...
Road Markings Style (RMS) Editor
Shape Mask | Width | Mark Length | Gap Length | Center Gap | H. Offset | Instancing | Fill Closed | Fill Angle
Rectangle001 | 0.2 | 1.0 | 2.0 | 0.0 | 0.0 | No | Yes | 0.0
Edit Style Element 1
Width: 0.2
Mark Length: 1.0
Gap Length: 2.0
Center Gap: 0.0
Horiz Offset: 0.0
Color:
Shape Label Mask
Rectangle001
Pick Shape Label >
Use instancing?
Fill closed shapes
Fill Angle: 0.0
Help
OK
Apply
Close
Object Creation Completed Successfully.
Splines
Object Type
AutoGrid
Start New Shape
Line Rectangle
Circle Ellipse
Arc Donut
NGon Star
Text Helix
Egg Section
Freehand
Name and Color
0 / 1000
None Selected
Click and drag to select and move objects
Add Time Tag
Auto Key
Set Key
Key Filters...

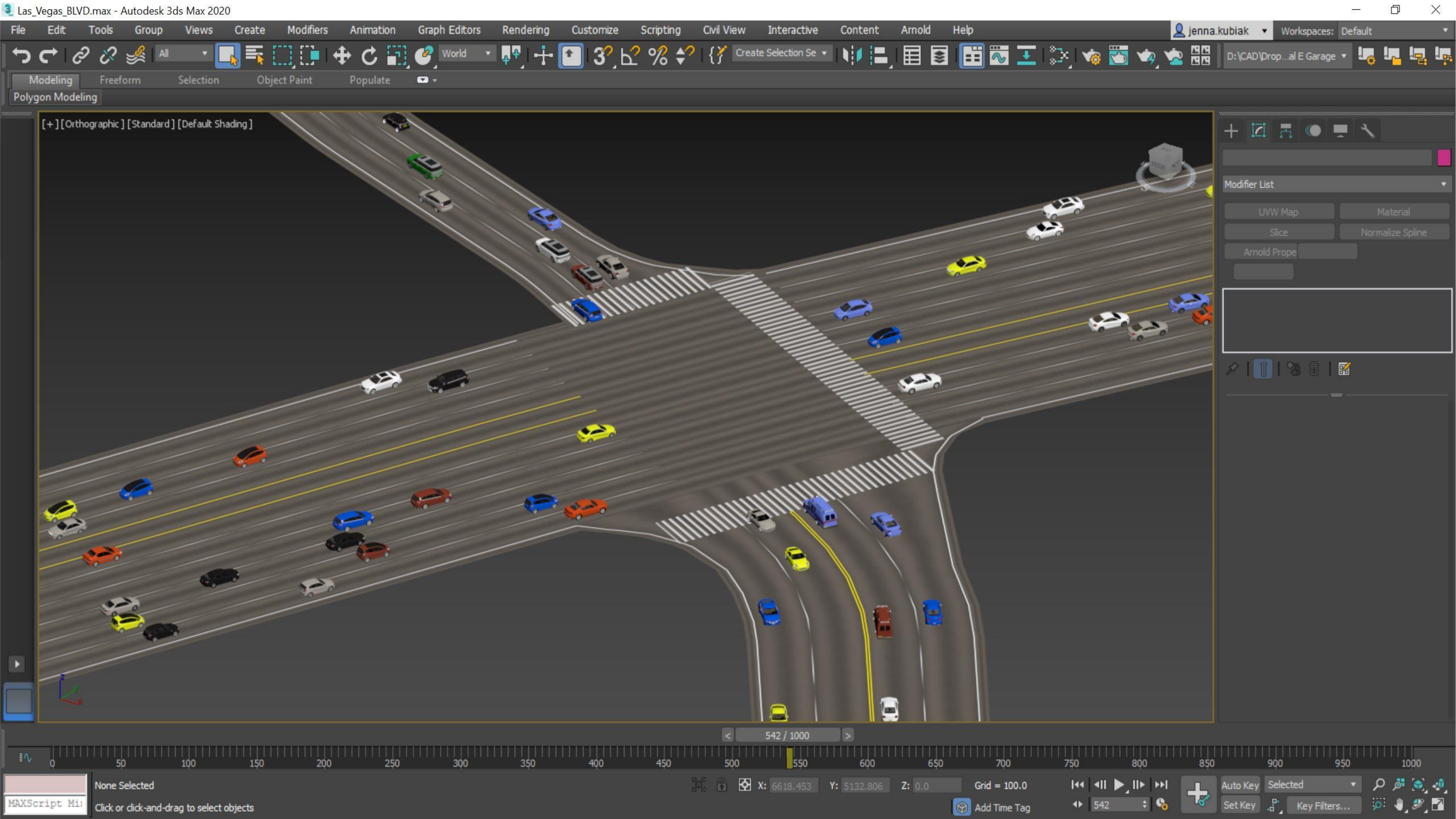


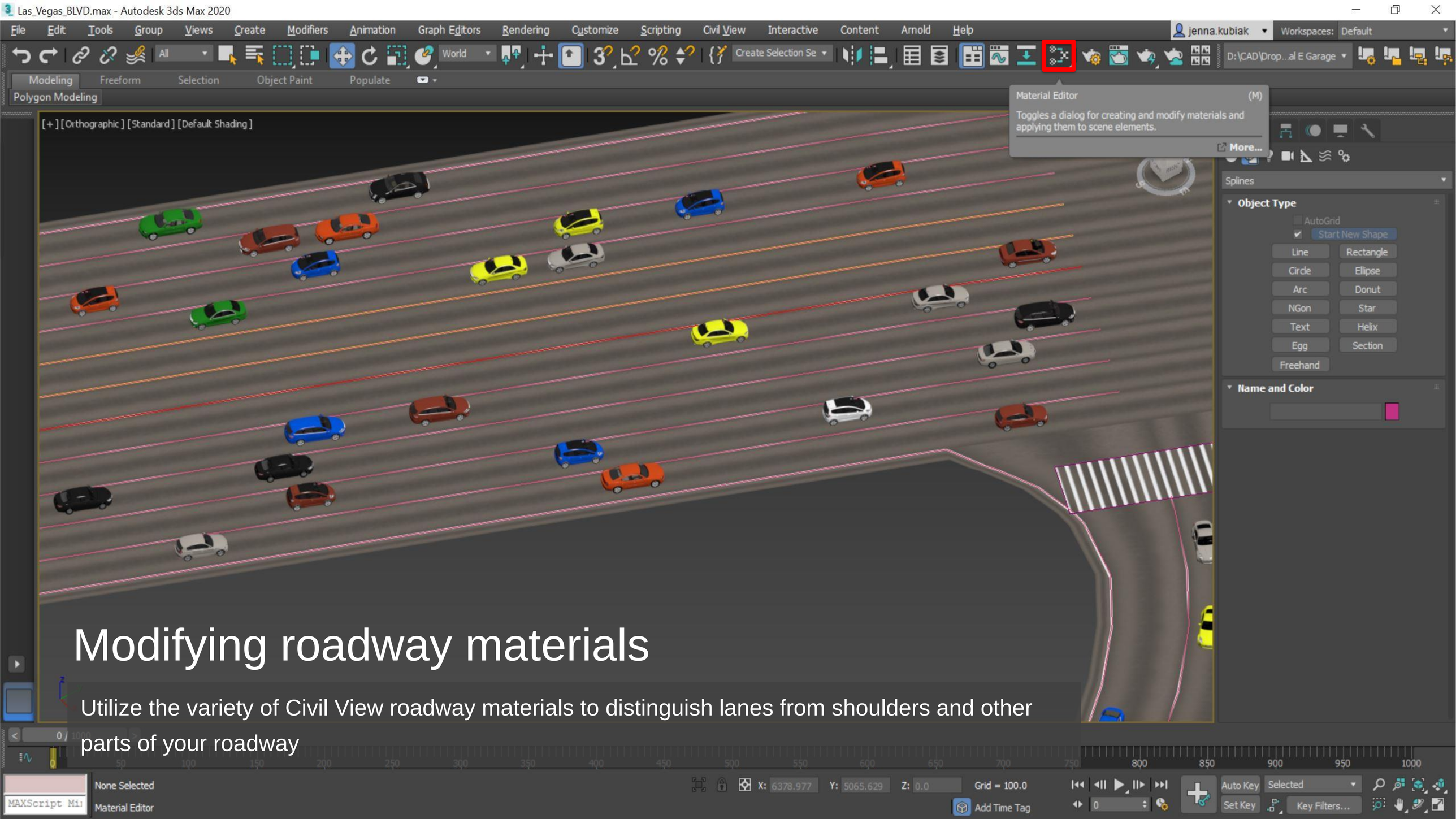
Object Placement Style Editor

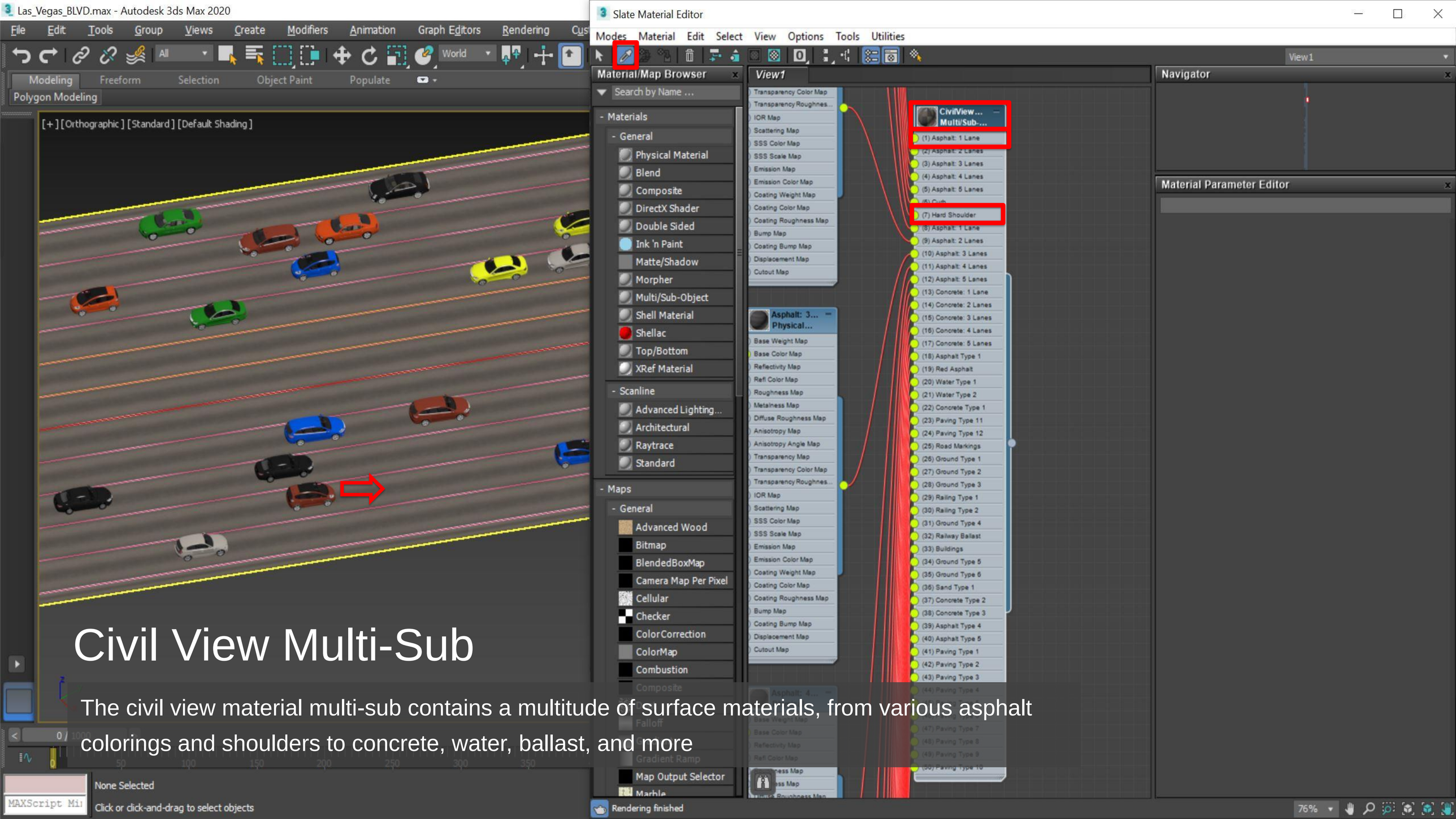
Places objects along a parent shape and allows control over position, horizontal/vertical offset parameters

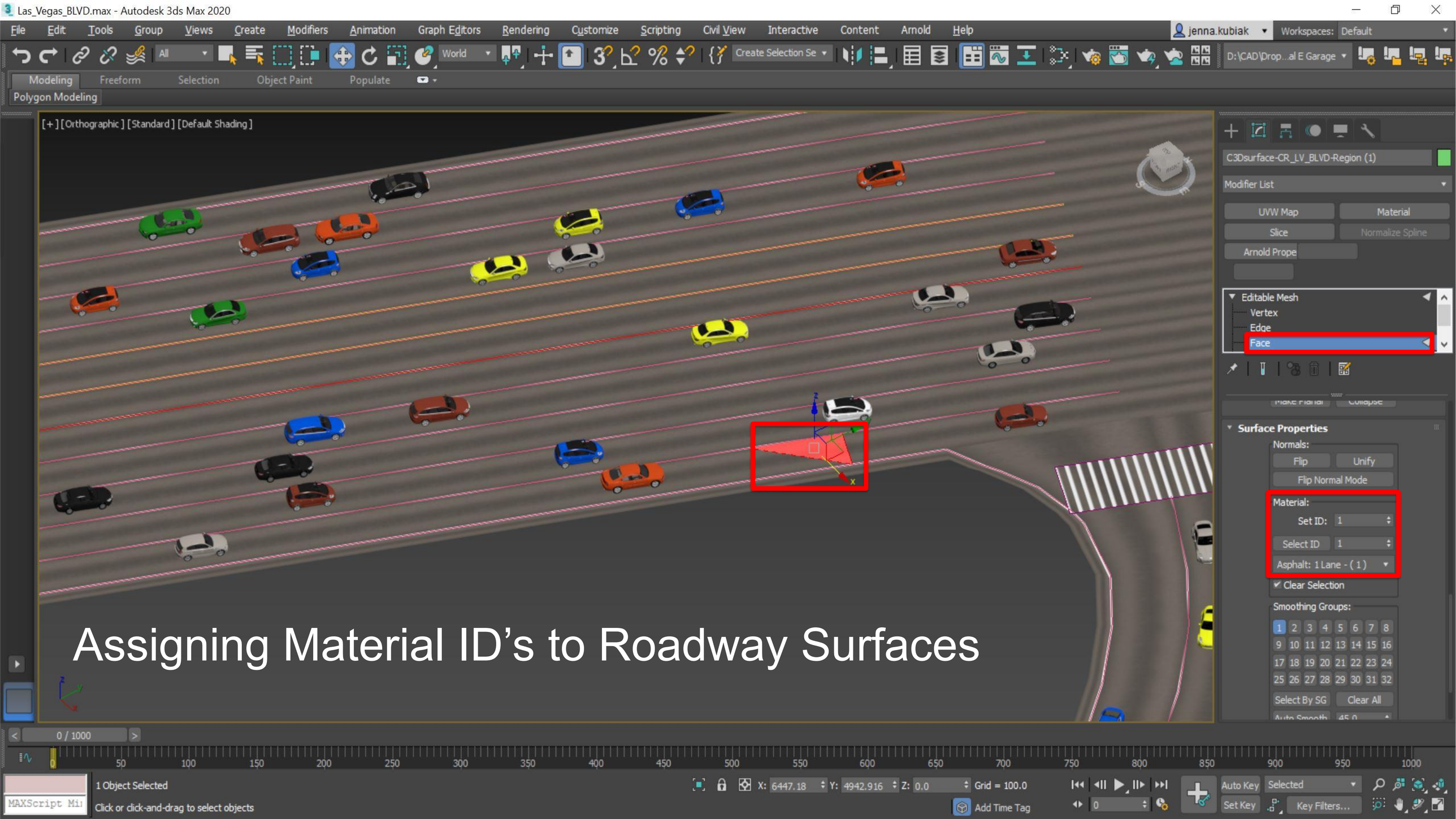

Untitled - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling
Polygon Modeling
[+] [Orthographic]
Object Placement Style (OPS) Editor
Object Definition Int. Rot. H. Offset V. Offset Start (%) End (%) Speed
Audi A3 0.0 0 0.0 0.0 0.0 100.0 0.0
Parent Shape
Parent Shape
Shape Name:
Dashed White
Spline Count: 1
Spline: 1
Parent Surface
Parent Surface X
Surface Name:
Face Count:
Longitudinal Placement
Place Single Object
Multiple (Regular Interval)
Multiple (Random Station)
Interval: 0
Start Station: 0.0
End Station: 448.94
Animation Options
km/hr: 0.0
Lateral Placement
Horiz Offset: 0.0
Vert Offset: 0.0
Crossfall: 0.0
Rotation: 0
Other Options
Use random object(s) from the selected category
Display only bounding box
Vehicles Furniture Trees and Plants Signs Cameras Primitives
Vehicles (35)
Emergency Vehicles (1)
Cars (16)
Aircraft (1)
SUVs (4)
Vans and Trucks (8)
Construction Vehicles (4)
Buses (1)
Object Definition Source/Type Dim. A Dim. B
Audi A3 AUDI_A3_... Space: 45....
BMW S1 BMW_S1_M... Space: 45....
Cadillac CTS CADILLAC_... Space: 45....
Chevy Camaro CHEVY_CA... Space: 45....
Dodge Charger DODGE_CH... Space: 45....
Ford Mondeo... MONDEO_S... Space: 45....
Honda Accord ACCORD_C... Space: 45....
Honda Fit HONDA FIT... Space: 45....
Mercedes C ... MERCEDES... Space: 45....
Mini Cooper MINI_COO... Space: 60....
Nissan 350Z NISSAN_35... Space: 45....
Help OK Apply Close
1 object(s) successfully created. Now apply amendments to parameters or hit OK to accept...
Splines
Object Type
AutoGrid
Start New Shape
Line Rectangle
Circle Ellipse
Arc Donut
NGon Star
Text Helix
Egg Section
Freehand
Name and Color
0 / 1000
None Selected
Click or click-and-drag to select objects
Add Time Tag
Auto Key Selected
Set Key Key Filters...


Untitled - Autodesk 3ds Max 2020
File Edit Tools
Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling
Polygon Modeling
[+][Orthographic]
Object Placement Style (OPS) Editor
Object Definition Int. Rot. H. Offset V. Offset Start (%) End (%) Speed
Audi A3 0.0 0 6.0 0.0 0.0 100.0 50.0
Parent Shape
Parent Shape
Shape Name:
Dashed White
Spline Count: 1
Spline: 1
Parent Surface
Parent Surface X
Surface Name:
Face Count:
Longitudinal Placement
Place Single Object
Multiple (Regular Interval)
Multiple (Random Station)
Interval: 0
Start Station: 0.0
End Station: 448.94
Animation Options
km/hr: 50.0
Lateral Placement
Horiz Offset: 6.0
Vert Offset: 0.0
Crossfall: 0.0
Rotation: 0 R
Other Options
Use random object(s) from the selected category
Display only bounding box
Vehicles Furniture Trees and Plants Signs Cameras Primitives
Vehicles (35)
Emergency Vehicles (1)
Cars (16)
Aircraft (1)
SUVs (4)
Vans and Trucks (8)
Construction Vehicles (4)
Buses (1)
Object Definition Source/Type Dim. A Dim. B
Audi A3 AUDI_A3_... Space: 45....
BMW S1 BMW_S1_M... Space: 45....
Cadillac CTS CADILLAC_... Space: 45....
Chevy Camaro CHEVY_CA... Space: 45....
Dodge Charger DODGE_CH... Space: 45....
Ford Mondeo... MONDEO_S... Space: 45....
Honda Accord ACCORD_C... Space: 45....
Honda Fit HONDA FIT... Space: 45....
Mercedes C ... MERCEDES... Space: 45....
Mini Cooper MINI_COO... Space: 60....
Nissan 350Z NISSAN_35... Space: 45....
Help OK Apply Close
1 object(s) successfully created. Now apply amendments to parameters or hit OK to accept...
Splines
Object Type
AutoGrid
Start New Shape
Line Rectangle
Circle Ellipse
Arc Donut
NGon Star
Text Helix
Egg Section
Freehand
Name and Color
351 / 1000
None Selected
Click or click-and-drag to select objects
Add Time Tag
Auto Key Selected
Set Key Key Filters...

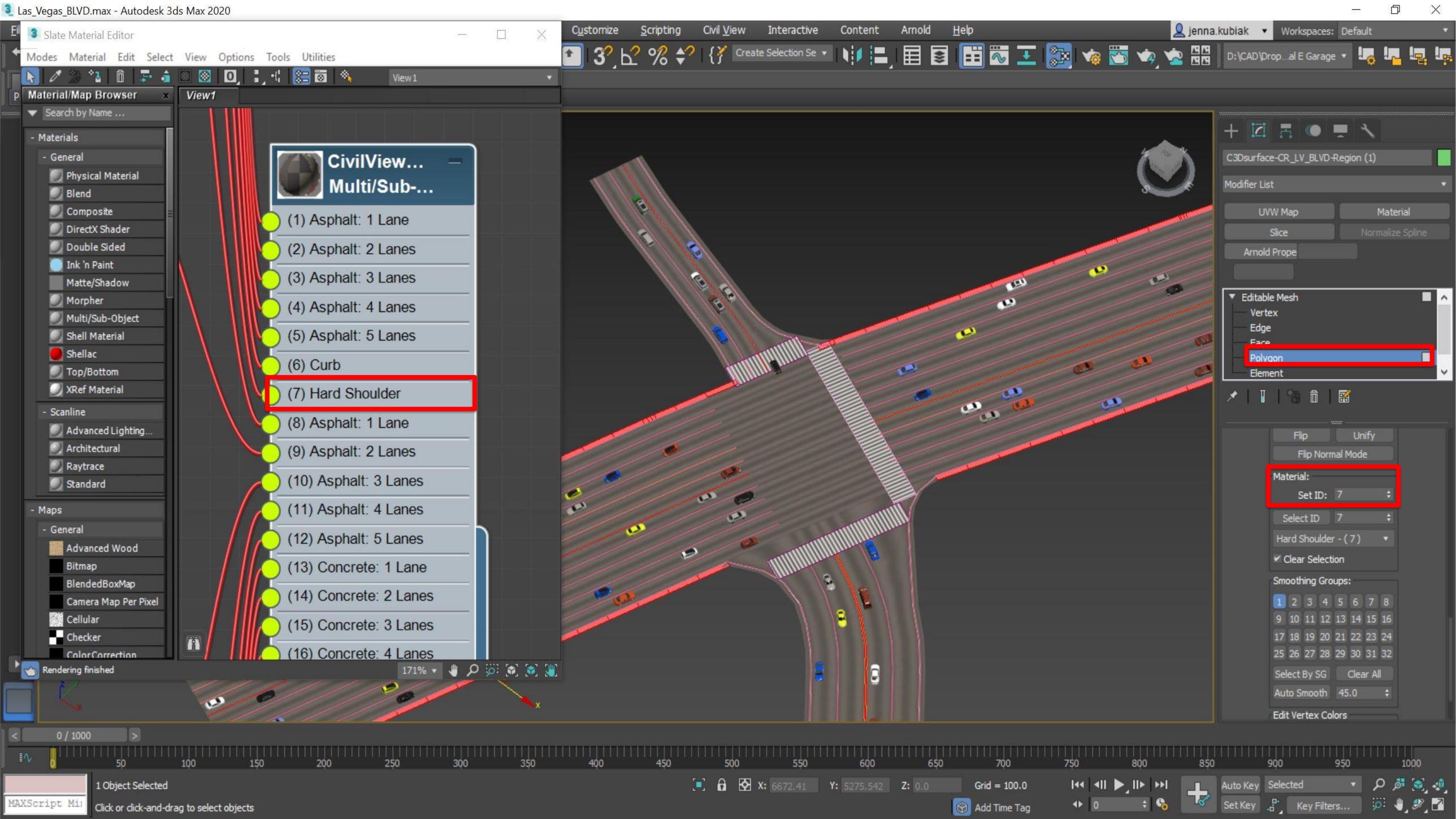

Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Modifier List
UVW Map
Material
Slice
Normalize Spline
542 / 1000
None Selected
Click or click-and-drag to select objects
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

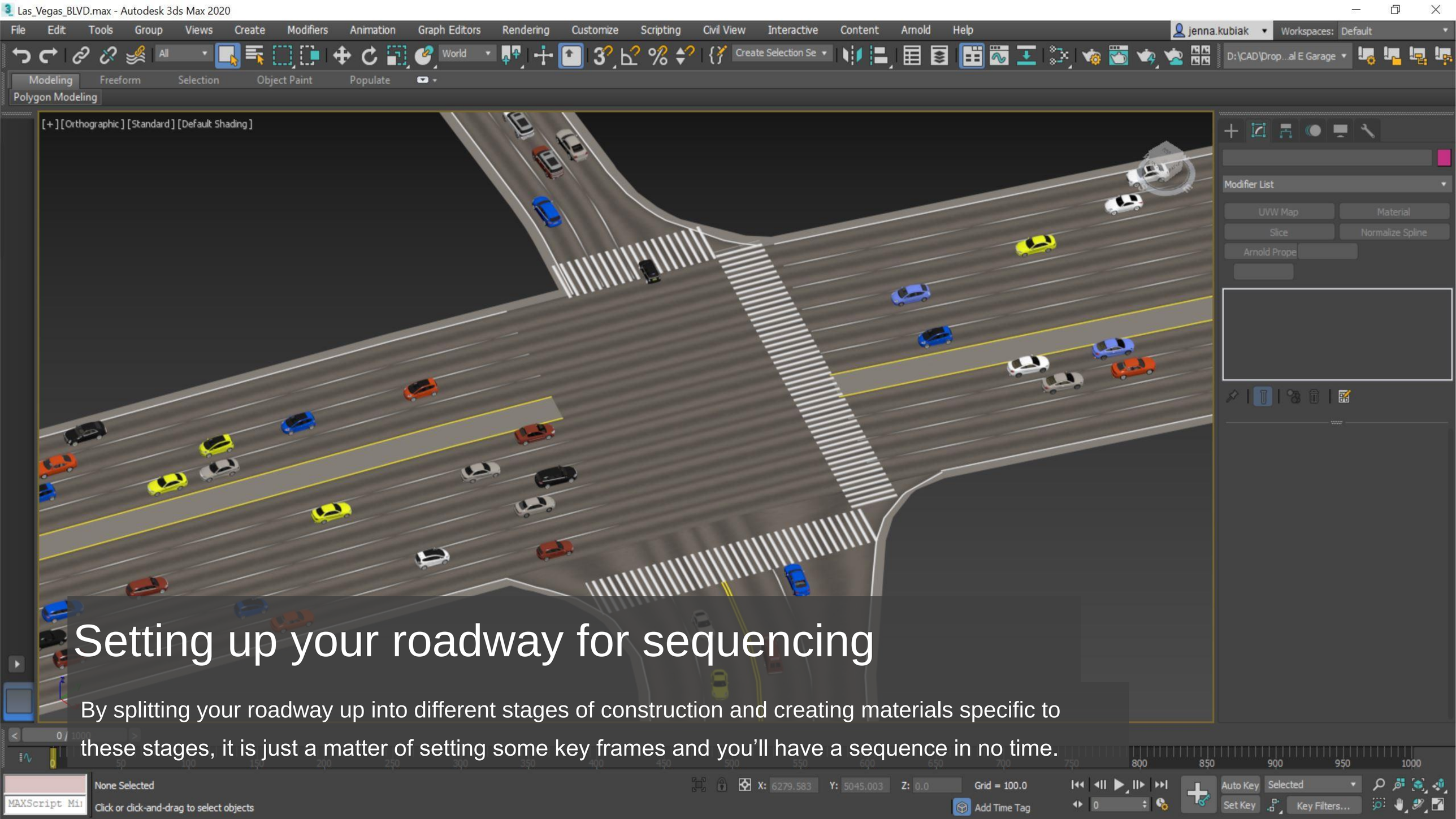

Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
Material Editor (M)
Toggles a dialog for creating and modify materials and applying them to scene elements.
More...
[+] [Orthographic] [Standard] [Default Shading]
Splines
Object Type
AutoGrid
Start New Shape
Line Rectangle
Circle Ellipse
Arc Donut
NGon Star
Text Helix
Egg Section
Freehand
Name and Color
Modifying roadway materials
Utilize the variety of Civil View roadway materials to distinguish lanes from shoulders and other parts of your roadway
None Selected
Material Editor
Add Time Tag
Auto Key
Set Key
Key Filters...

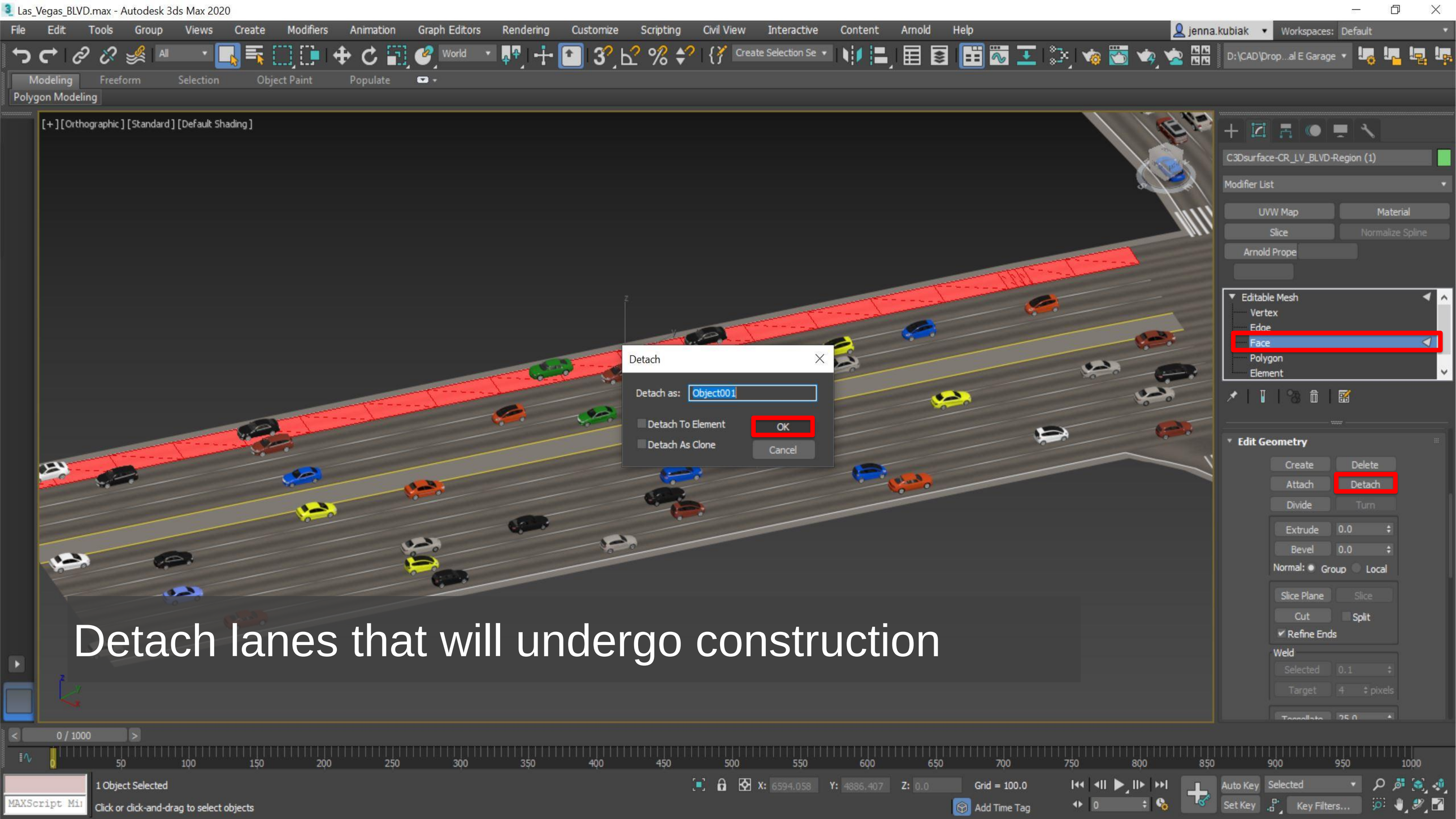

Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
Slate Material Editor
Material/Map Browser
Materials
General
Physical Material
Blend
Composite
DirectX Shader
Double Sided
Ink 'n Paint
Matte/Shadow
Morpher
Multi/Sub-Object
Shell Material
Shellac
Top/Bottom
XRef Material
Scanline
Advanced Lighting...
Architectural
Raytrace
Standard
Maps
General
Advanced Wood
Bitmap
BlendedBoxMap
Camera Map Per Pixel
Cellular
Checker
ColorCorrection
ColorMap
Combustion
Map Output Selector
Navigator
Material Parameter Editor
[+] [Orthographic] [Standard] [Default Shading]
Civil View Multi-Sub
The civil view material multi-sub contains a multitude of surface materials, from various asphalt colorings and shoulders to concrete, water, ballast, and more
None Selected
Click or click-and-drag to select objects
Rendering finished

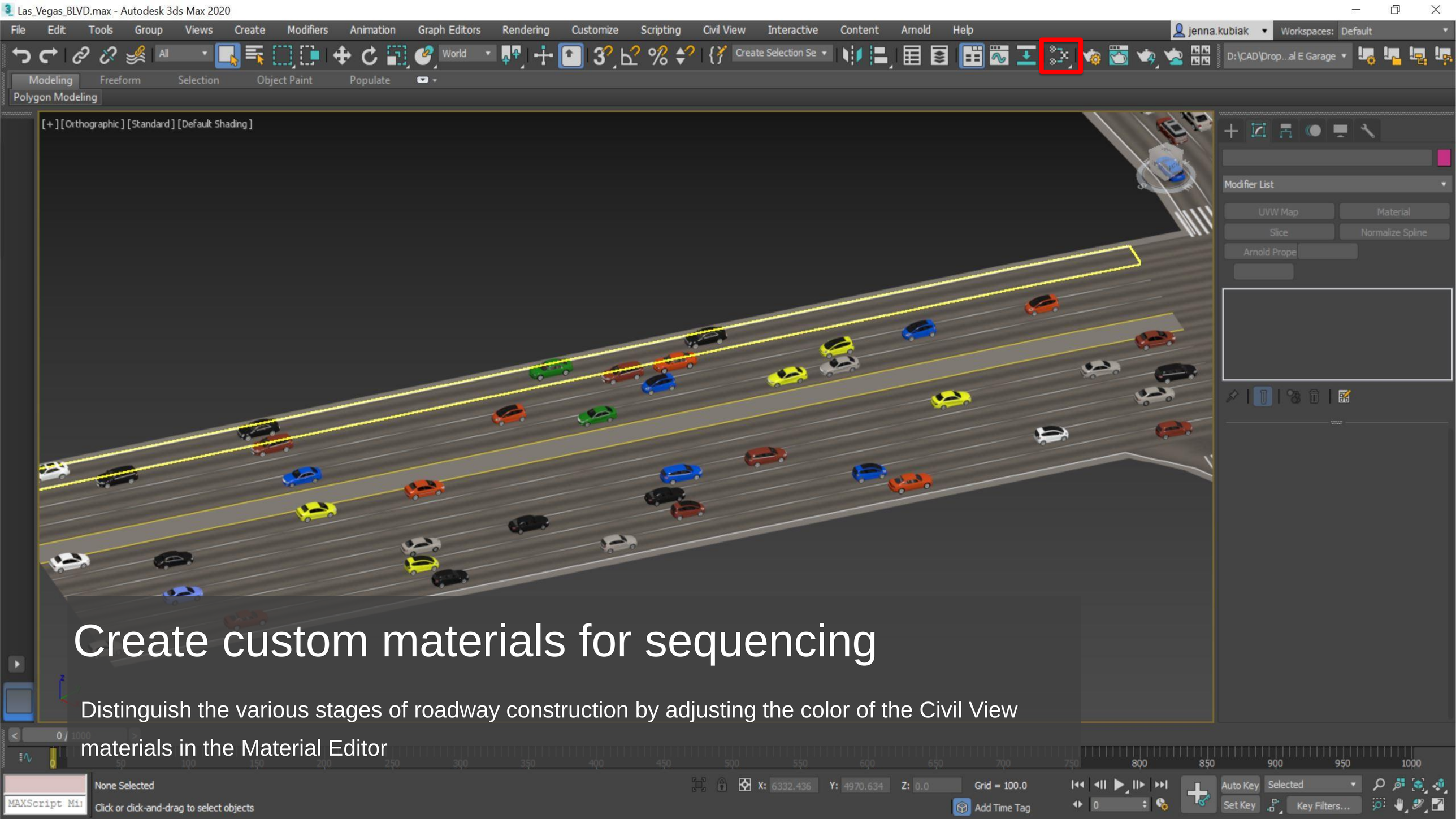


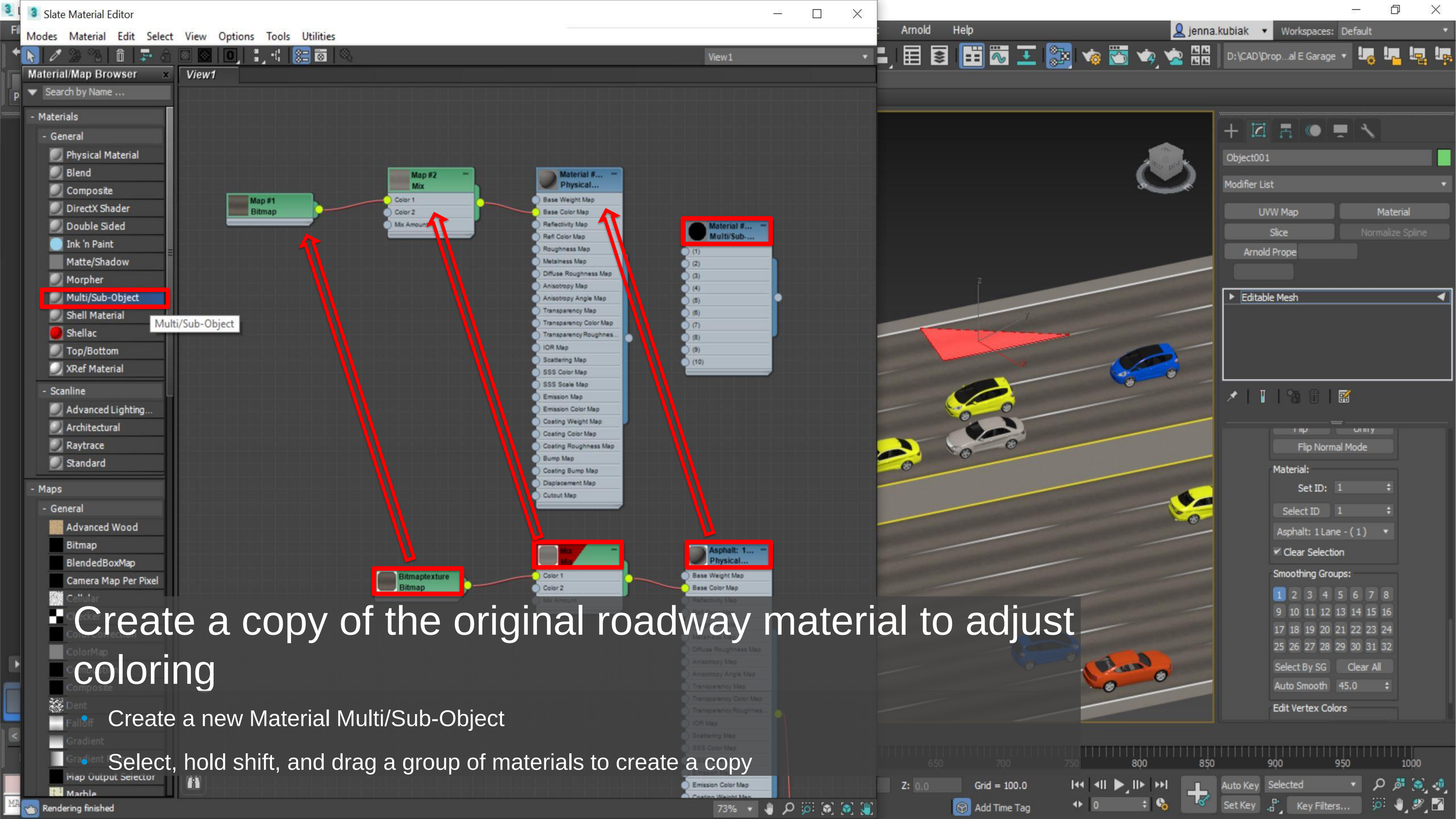
Assigning Material ID's to Roadway Surfaces


Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
Slate Material Editor
Modes Material Edit Select View Options Tools Utilities
Material/Map Browser
Search by Name ...
Materials
General
Physical Material
Blend
Composite
DirectX Shader
Double Sided
Ink 'n Paint
Matte/Shadow
Morpher
Multi/Sub-Object
Shell Material
Shellac
Top/Bottom
XRef Material
Scanline
Advanced Lighting...
Architectural
Raytrace
Standard
Maps
General
Advanced Wood
Bitmap
BlendedBoxMap
Camera Map Per Pixel
Cellular
Checker
ColorCorrection
View1
CivilView... Multi/Sub-...
(1) Asphalt: 1 Lane
(2) Asphalt: 2 Lanes
(3) Asphalt: 3 Lanes
(4) Asphalt: 4 Lanes
(5) Asphalt: 5 Lanes
(6) Curb
(7) Hard Shoulder
(8) Asphalt: 1 Lane
(9) Asphalt: 2 Lanes
(10) Asphalt: 3 Lanes
(11) Asphalt: 4 Lanes
(12) Asphalt: 5 Lanes
(13) Concrete: 1 Lane
(14) Concrete: 2 Lanes
(15) Concrete: 3 Lanes
(16) Concrete: 4 Lanes
Rendering finished
171%
Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
C3Dsurface-CR_LV_BLVD-Region (1)
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Mesh
Vertex
Edge
Face
Polygon
Element
Flip
Unify
Flip Normal Mode
Material:
Set ID: 7
Select ID 7
Hard Shoulder - (7)
Clear Selection
Smoothing Groups:
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32
Select By SG
Clear All
Auto Smooth 45.0
Edit Vertex Colors
0 / 1000
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000
1 Object Selected
Click or click-and-drag to select objects
X: 6672.41 Y: 5275.542 Z: 0.0
Grid = 100.0
Add Time Tag
Auto Key Selected
Set Key
Key Filters...
MAXScript Mi


Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Setting up your roadway for sequencing
By splitting your roadway up into different stages of construction and creating materials specific to these stages, it is just a matter of setting some key frames and you'll have a sequence in no time.
None Selected
Click or click-and-drag to select objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

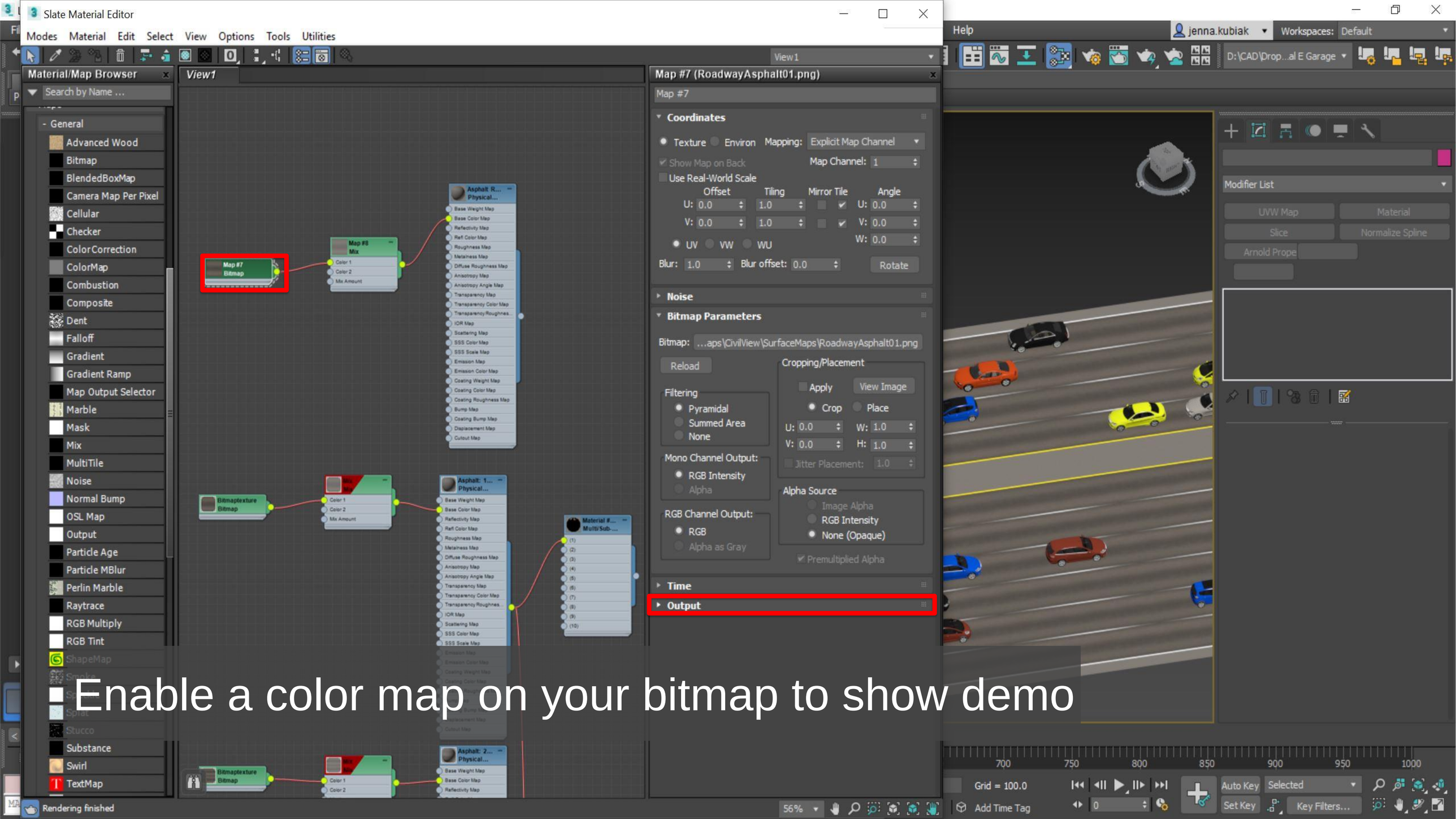

Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
C3Dsurface-CR_LV_BLVD-Region (1)
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Mesh
Vertex
Edge
Face
Polygon
Element
Edit Geometry
Create
Delete
Attach
Detach
Divide
Turn
Extrude 0.0
Bevel 0.0
Normal: Group Local
Slice Plane
Slice
Cut
Split
Refine Ends
Weld
Selected 0.1
Target 4 pixels
Detach
Detach as: Object001
Detach To Element
Detach As Clone
OK
Cancel
Detach lanes that will undergo construction
0 / 1000
1 Object Selected
Click or click-and-drag to select objects
X: 6594.058
Y: 4886.407
Z: 0.0
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
MAXScript Mi

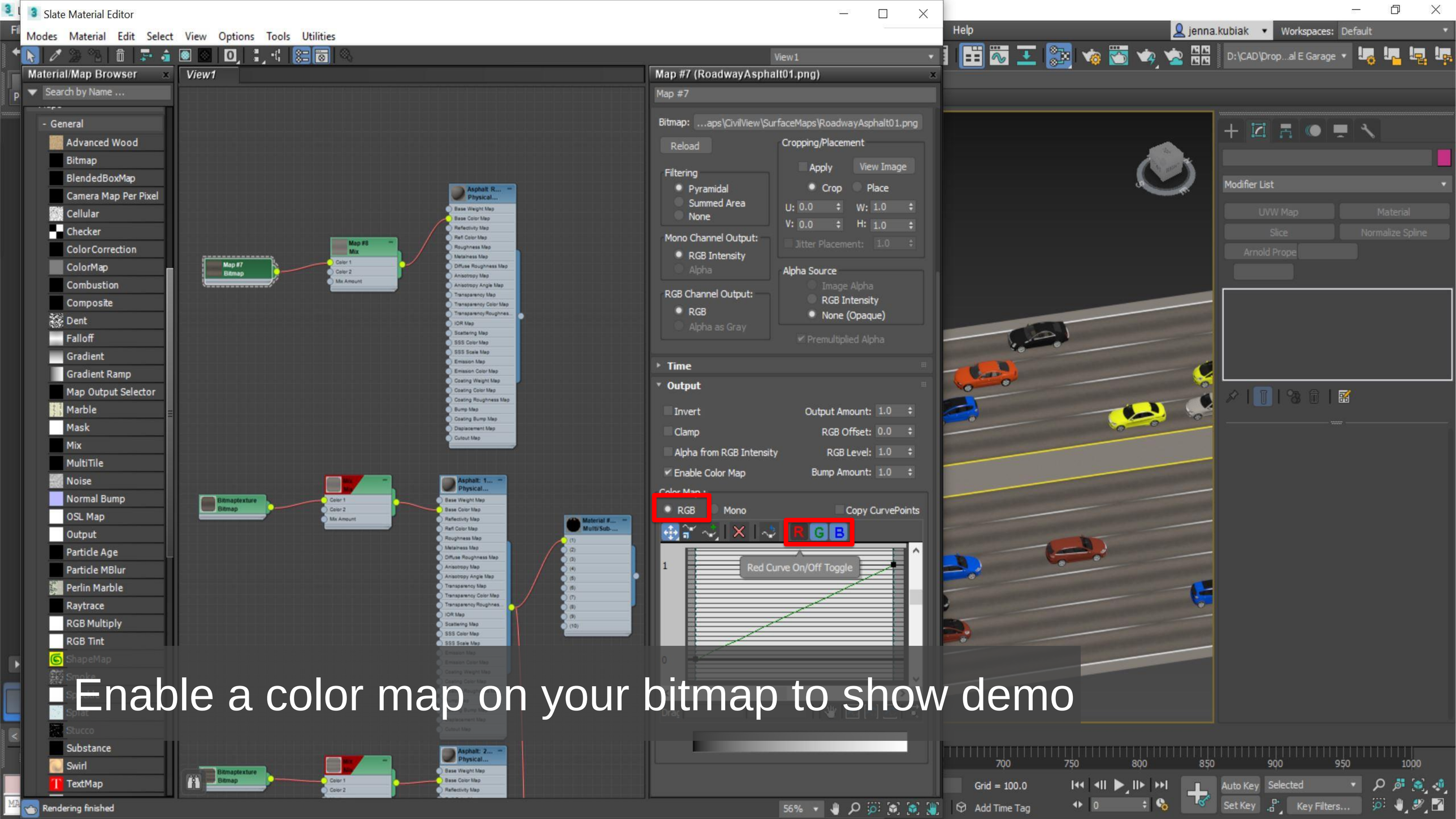

Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Modifier List
UVW Map
Material
Slice
Normalize Spline
Create custom materials for sequencing
Distinguish the various stages of roadway construction by adjusting the color of the Civil View materials in the Material Editor
None Selected
Click or click-and-drag to select objects
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

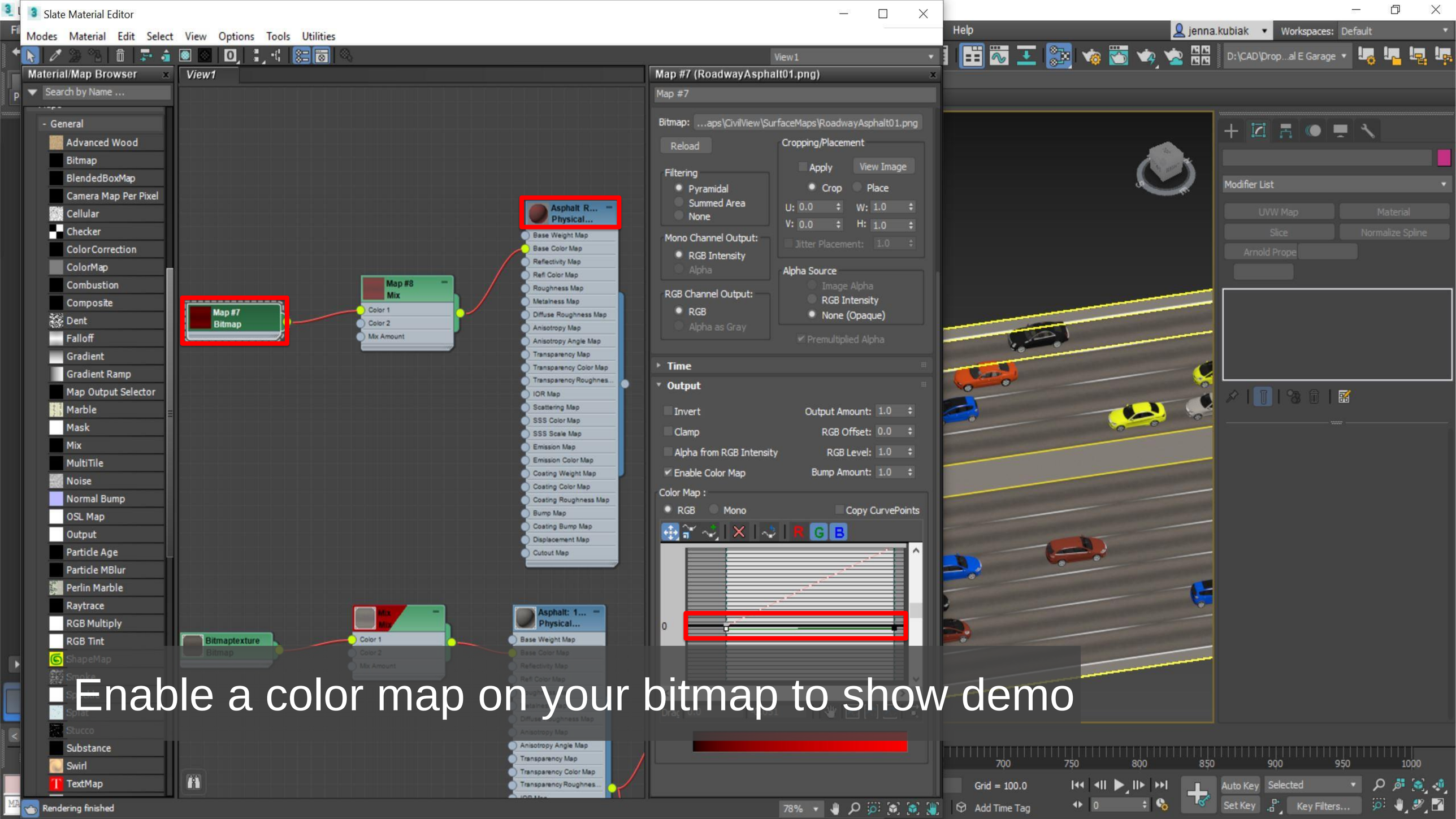


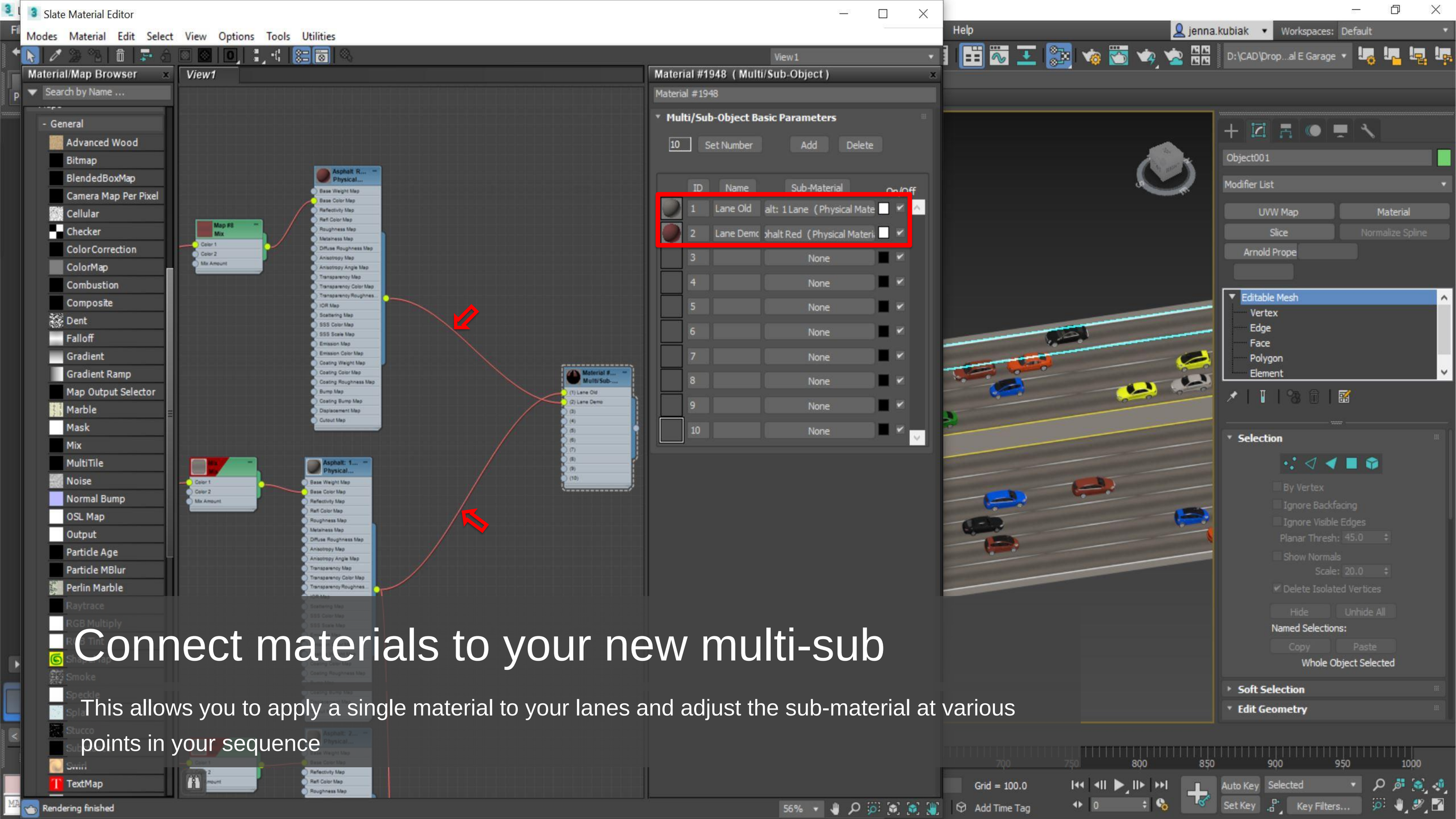
Create a copy of the original roadway material to adjust coloring

- Create a new Material Multi/Sub-Object
- Select, hold shift, and drag a group of materials to create a copy


Slate Material Editor
Modes Material Edit Select View Options Tools Utilities
Material/Map Browser
Search by Name ...
General
Advanced Wood
Bitmap
BlendedBoxMap
Camera Map Per Pixel
Cellular
Checker
ColorCorrection
ColorMap
Combustion
Composite
Dent
Falloff
Gradient
Gradient Ramp
Map Output Selector
Marble
Mask
Mix
MultiTile
Noise
Normal Bump
OSL Map
Output
Particle Age
Particle MBlur
Perlin Marble
Raytrace
RGB Multiply
RGB Tint
ShapeMap
Stucco
Substance
Swirl
TextMap
View1
Map #7 (RoadwayAsphalt01.png)
Map #7
Coordinates
Texture Environ Mapping: Explicit Map Channel
Show Map on Back
Map Channel: 1
Use Real-World Scale
Offset Tiling Mirror Tile Angle
U: 0.0 1.0 U: 0.0
V: 0.0 1.0 V: 0.0
W: 0.0
UV VW WU
Blur: 1.0 Blur offset: 0.0 Rotate
Noise
Bitmap Parameters
Bitmap: ...aps\CivilView\SurfaceMaps\RoadwayAsphalt01.png
Reload
Cropping/Placement
Apply View Image
Crop Place
U: 0.0 W: 1.0
V: 0.0 H: 1.0
Jitter Placement: 1.0
Filtering
Pyramidal
Summed Area
None
Mono Channel Output:
RGB Intensity
Alpha
RGB Channel Output:
RGB
Alpha as Gray
Alpha Source
Image Alpha
RGB Intensity
None (Opaque)
Premultiplied Alpha
Time
Output
Rendering finished
56%
Enable a color map on your bitmap to show demo
Modifier List
UVW Map
Material
Slice
Normalize Spline
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

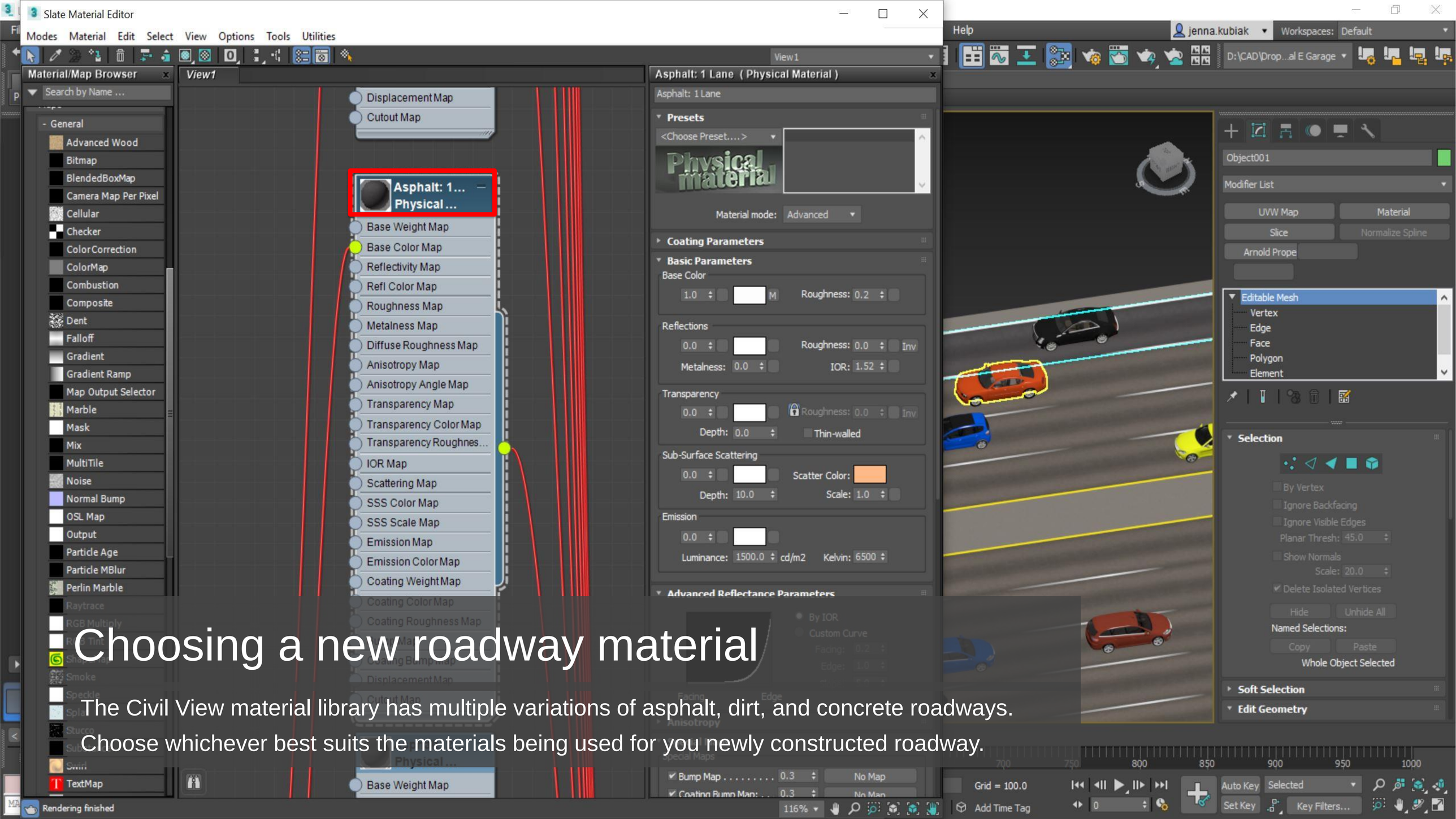

Slate Material Editor
Modes Material Edit Select View Options Tools Utilities
Material/Map Browser
Search by Name ...
General
Advanced Wood
Bitmap
BlendedBoxMap
Camera Map Per Pixel
Cellular
Checker
ColorCorrection
ColorMap
Combustion
Composite
Dent
Falloff
Gradient
Gradient Ramp
Map Output Selector
Marble
Mask
Mix
MultiTile
Noise
Normal Bump
OSL Map
Output
Particle Age
Particle MBlur
Perlin Marble
Raytrace
RGB Multiply
RGB Tint
ShapeMap
Stucco
Substance
Swirl
TextMap
View1
Map #7 (RoadwayAsphalt01.png)
Map #7
Bitmap: ...aps\CivilView\SurfaceMaps\RoadwayAsphalt01.png
Reload
Cropping/Placement
Apply
View Image
Crop
Place
U: 0.0
V: 0.0
W: 1.0
H: 1.0
Jitter Placement: 1.0
Filtering
Pyramidal
Summed Area
None
Mono Channel Output:
RGB Intensity
Alpha
RGB Channel Output:
RGB
Alpha as Gray
Alpha Source
Image Alpha
RGB Intensity
None (Opaque)
Premultiplied Alpha
Time
Output
Invert
Clamp
Alpha from RGB Intensity
Enable Color Map
Output Amount: 1.0
RGB Offset: 0.0
RGB Level: 1.0
Bump Amount: 1.0
RGB
Mono
Copy CurvePoints
R G B
Red Curve On/Off Toggle
Rendering finished
Help
jenna.kubiak
Workspaces: Default
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
Enable a color map on your bitmap to show demo


Slate Material Editor
Modes Material Edit Select View Options Tools Utilities
Material/Map Browser
Search by Name ...
General
Advanced Wood
Bitmap
BlendedBoxMap
Camera Map Per Pixel
Cellular
Checker
ColorCorrection
ColorMap
Combustion
Composite
Dent
Falloff
Gradient
Gradient Ramp
Map Output Selector
Marble
Mask
Mix
MultiTile
Noise
Normal Bump
OSL Map
Output
Particle Age
Particle MBlur
Perlin Marble
Raytrace
RGB Multiply
RGB Tint
ShapeMap
Stucco
Substance
Swirl
TextMap
View1
Map #7 Bitmap
Map #8 Mix
Color 1
Color 2
Mix Amount
Asphalt R... Physical...
Base Weight Map
Base Color Map
Reflectivity Map
Refl Color Map
Roughness Map
Metalness Map
Diffuse Roughness Map
Anisotropy Map
Anisotropy Angle Map
Transparency Map
Transparency Color Map
Transparency Roughnes...
IOR Map
Scattering Map
SSS Color Map
SSS Scale Map
Emission Map
Emission Color Map
Coating Weight Map
Coating Color Map
Coating Roughness Map
Bump Map
Coating Bump Map
Displacement Map
Cutout Map
Bitmaptexture
Bitmap
Mix
Asphalt: 1... Physical...
Map #7 (RoadwayAsphalt01.png)
Map #7
Bitmap: ...aps\CivilView\SurfaceMaps\RoadwayAsphalt01.png
Reload
Filtering
Pyramidal
Summed Area
None
Mono Channel Output:
RGB Intensity
Alpha
RGB Channel Output:
RGB
Alpha as Gray
Cropping/Placement
Apply
View Image
Crop
Place
U: 0.0
V: 0.0
W: 1.0
H: 1.0
Jitter Placement: 1.0
Alpha Source
Image Alpha
RGB Intensity
None (Opaque)
Premultiplied Alpha
Time
Output
Invert
Clamp
Alpha from RGB Intensity
Enable Color Map
Output Amount: 1.0
RGB Offset: 0.0
RGB Level: 1.0
Bump Amount: 1.0
Color Map :
RGB
Mono
Copy CurvePoints
R G B
0
Rendering finished
78%
Help
jenna.kubiak
Workspaces: Default
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
700 750 800 850 900 950 1000
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
Enable a color map on your bitmap to show demo



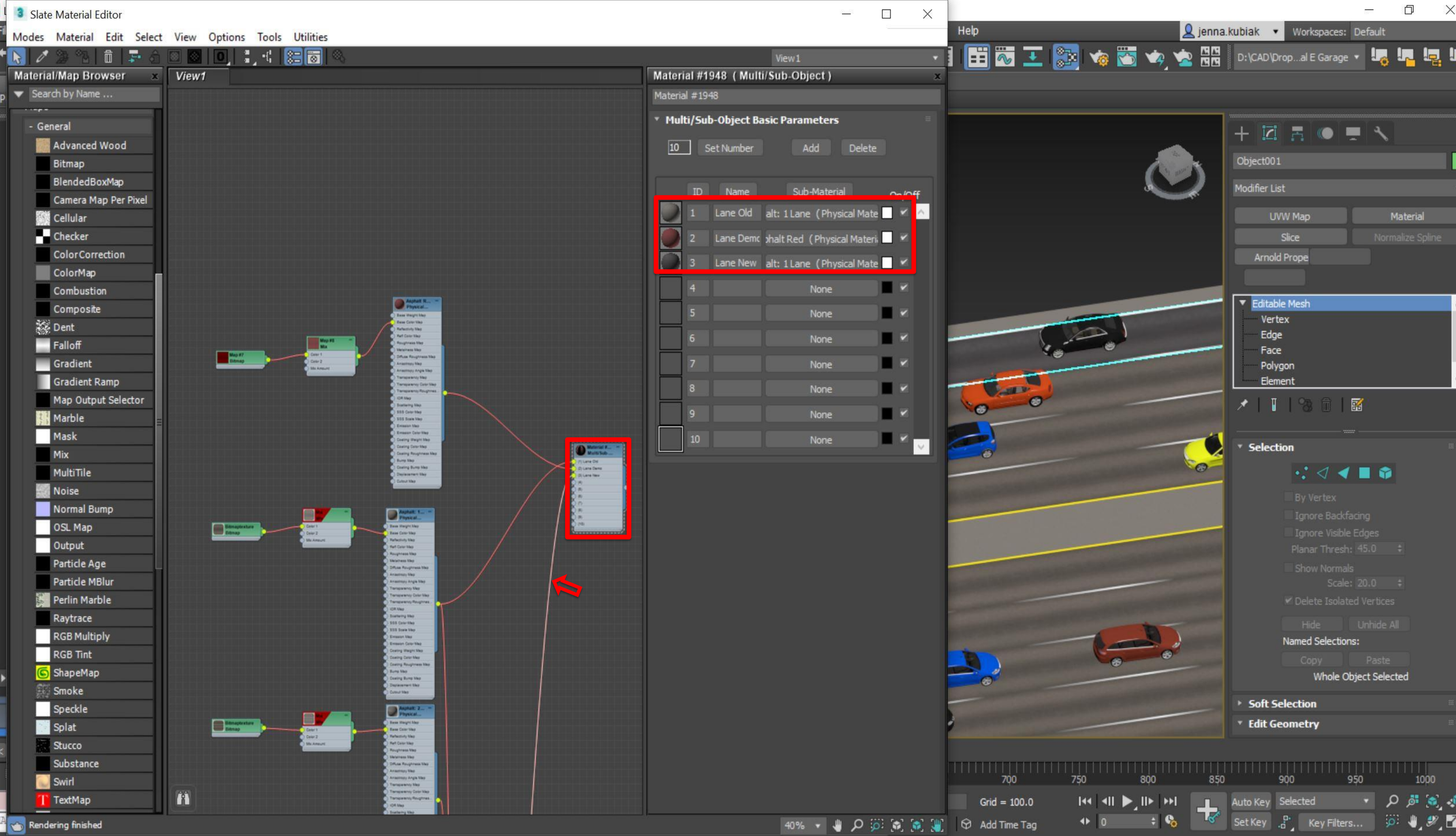
Connect materials to your new multi-sub

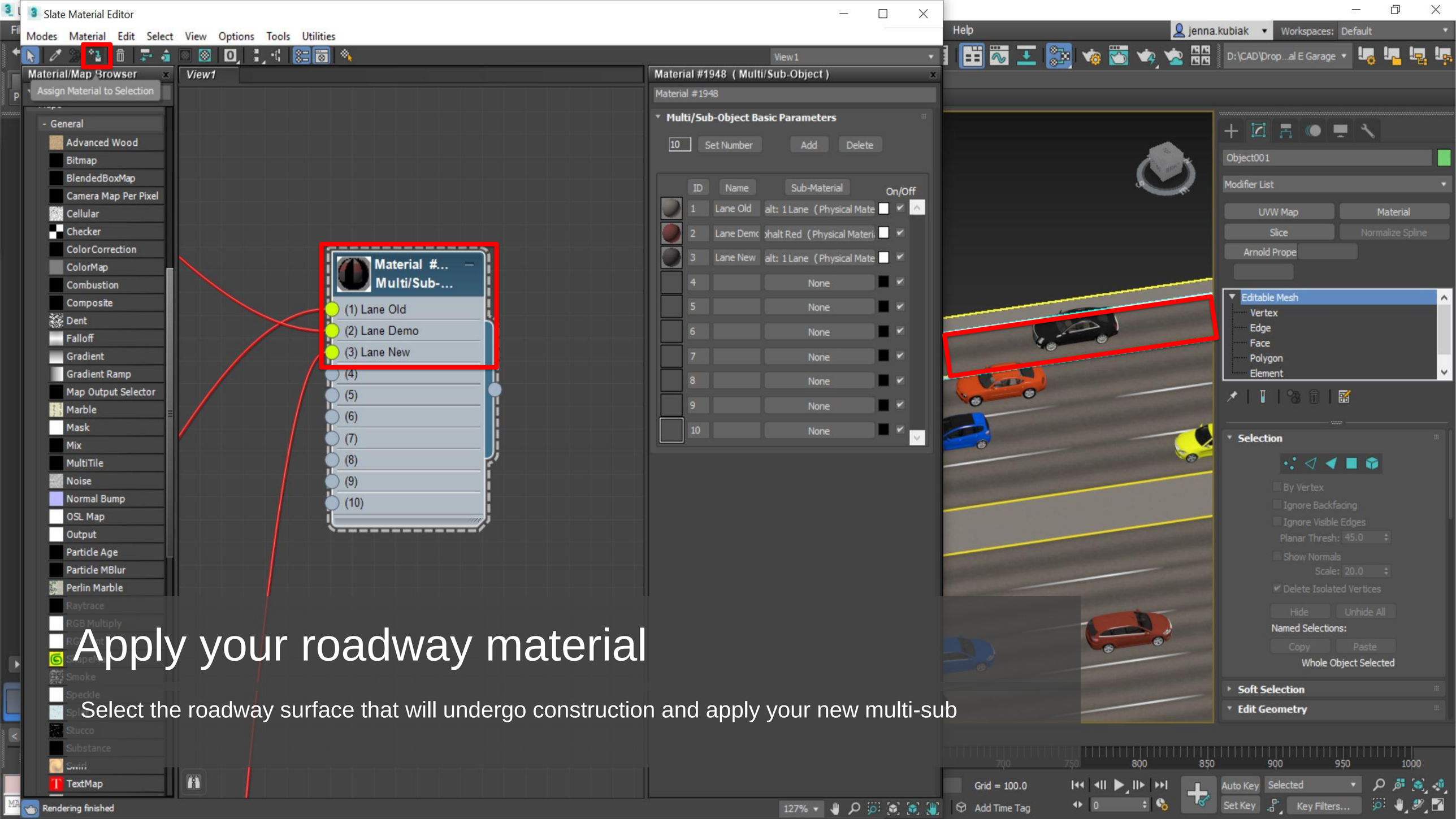
This allows you to apply a single material to your lanes and adjust the sub-material at various points in your sequence



Choosing a new roadway material

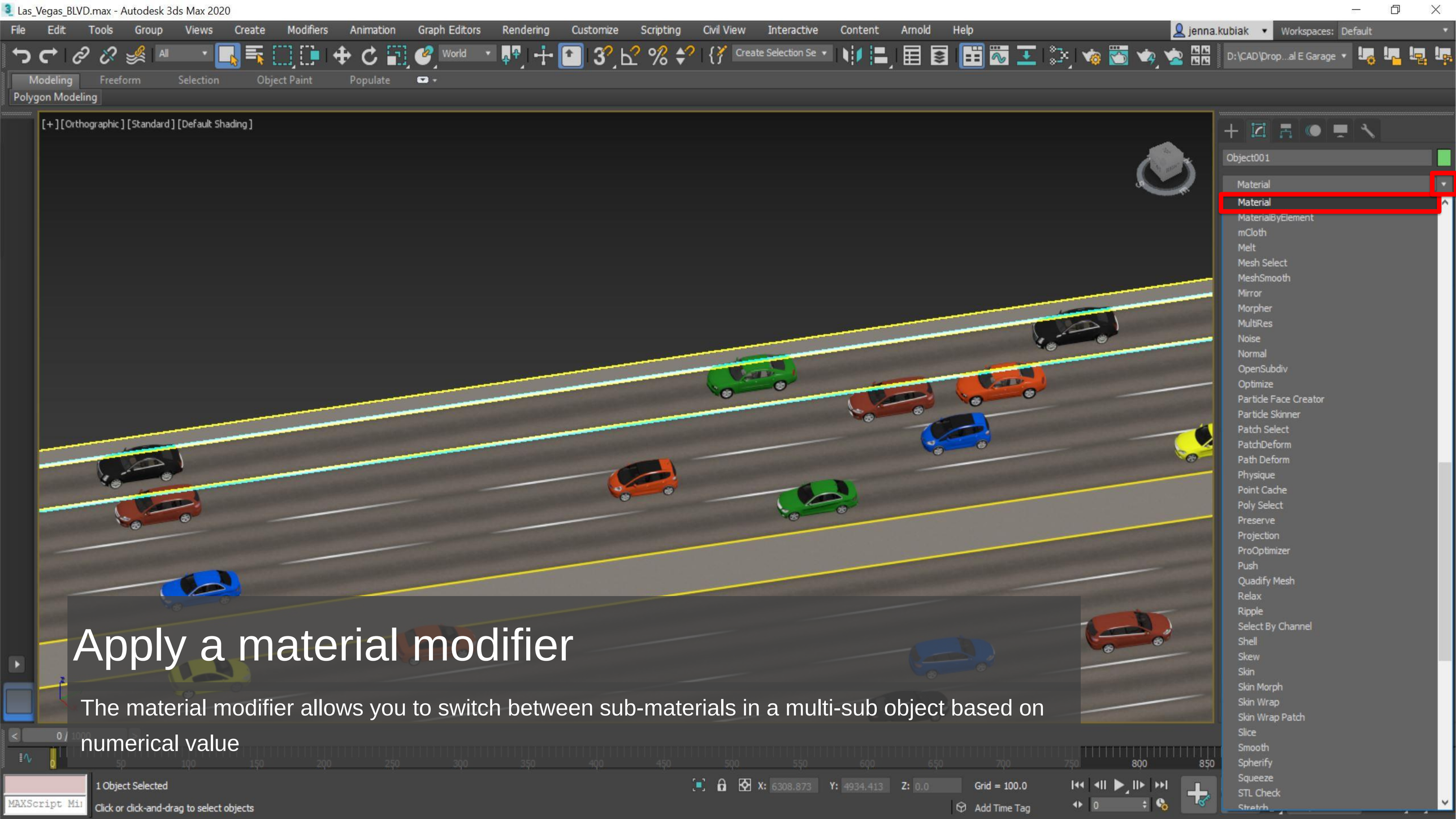
The Civil View material library has multiple variations of asphalt, dirt, and concrete roadways. Choose whichever best suits the materials being used for you newly constructed roadway.


Slate Material Editor
Modes Material Edit Select View Options Tools Utilities
Material/Map Browser
Search by Name ...
General
Advanced Wood
Bitmap
BlendedBoxMap
Camera Map Per Pixel
Cellular
Checker
ColorCorrection
ColorMap
Combustion
Composite
Dent
Falloff
Gradient
Gradient Ramp
Map Output Selector
Marble
Mask
Mix
MultiTile
Noise
Normal Bump
OSL Map
Output
Particle Age
Particle MBlur
Perlin Marble
Raytrace
RGB Multiply
RGB Tint
ShapeMap
Smoke
Speckle
Splat
Stucco
Substance
Swirl
TextMap
View1
Material #1948 (Multi/Sub-Object)
Material #1948
Multi/Sub-Object Basic Parameters
10
Set Number
Add
Delete
ID
Name
Sub-Material
1 Lane Old alt: 1 Lane (Physical Mate
2 Lane Demc halt Red (Physical Materi
3 Lane New alt: 1 Lane (Physical Mate
4 None
5 None
6 None
7 None
8 None
9 None
10 None
Rendering finished
40%
Object001
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Mesh
Vertex
Edge
Face
Polygon
Element
Selection
By Vertex
Ignore Backfacing
Ignore Visible Edges
Planar Thresh: 45.0
Show Normals
Scale: 20.0
Delete Isolated Vertices
Hide
Unhide All
Named Selections:
Copy
Paste
Whole Object Selected
Soft Selection
Edit Geometry
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
700
750
800
850
900
950
1000



Apply your roadway material

Select the roadway surface that will undergo construction and apply your new multi-sub


Las_Vegas_BLVD.max - Autodesk 3ds Max 2020
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize Scripting Civil View Interactive Content Arnold Help
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Object001
Material
Material
MaterialByElement
mCloth
Melt
Mesh Select
MeshSmooth
Mirror
Morpher
MultiRes
Noise
Normal
OpenSubdiv
Optimize
Particle Face Creator
Particle Skinner
Patch Select
PatchDeform
Path Deform
Physique
Point Cache
Poly Select
Preserve
Projection
ProOptimizer
Push
Quadify Mesh
Relax
Ripple
Select By Channel
Shell
Skew
Skin
Skin Morph
Skin Wrap
Skin Wrap Patch
Slice
Smooth
Spherify
Squeeze
STL Check
Stretch
Apply a material modifier
The material modifier allows you to switch between sub-materials in a multi-sub object based on numerical value
1 Object Selected
Click or click-and-drag to select objects
Add Time Tag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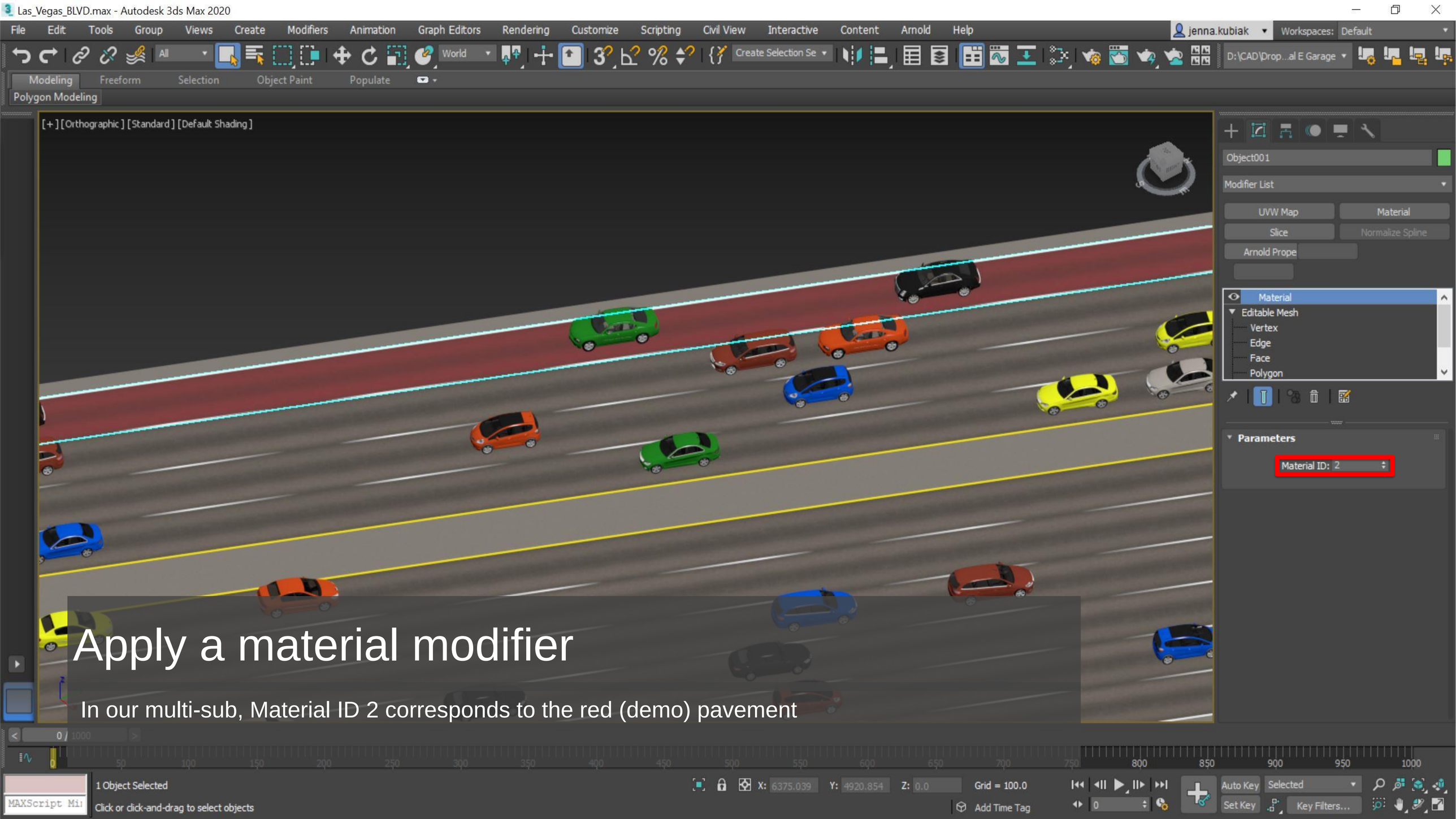
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Object001
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Material
Editable Mesh
Vertex
Edge
Face
Polygon
Parameters
Material ID: 1
Apply a material modifier
In our multi-sub, Material ID 1 corresponds to the old pavement
1 Object Selected
Click or click-and-drag to select objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...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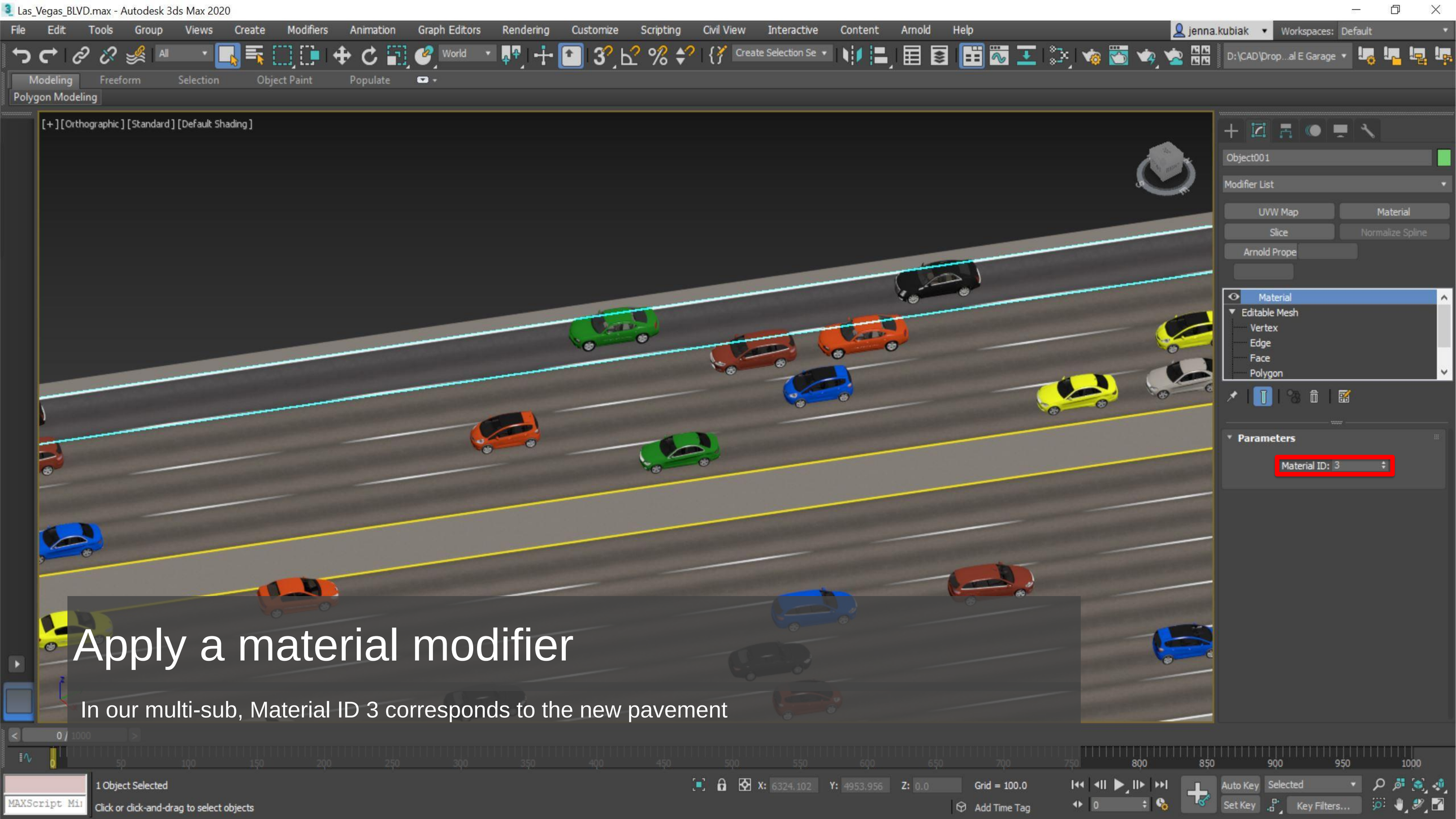
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Object001
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Material
Editable Mesh
Vertex
Edge
Face
Polygon
Parameters
Material ID: 2
Apply a material modifier
In our multi-sub, Material ID 2 corresponds to the red (demo) pavement
1 Object Selected
Click or click-and-drag to select objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...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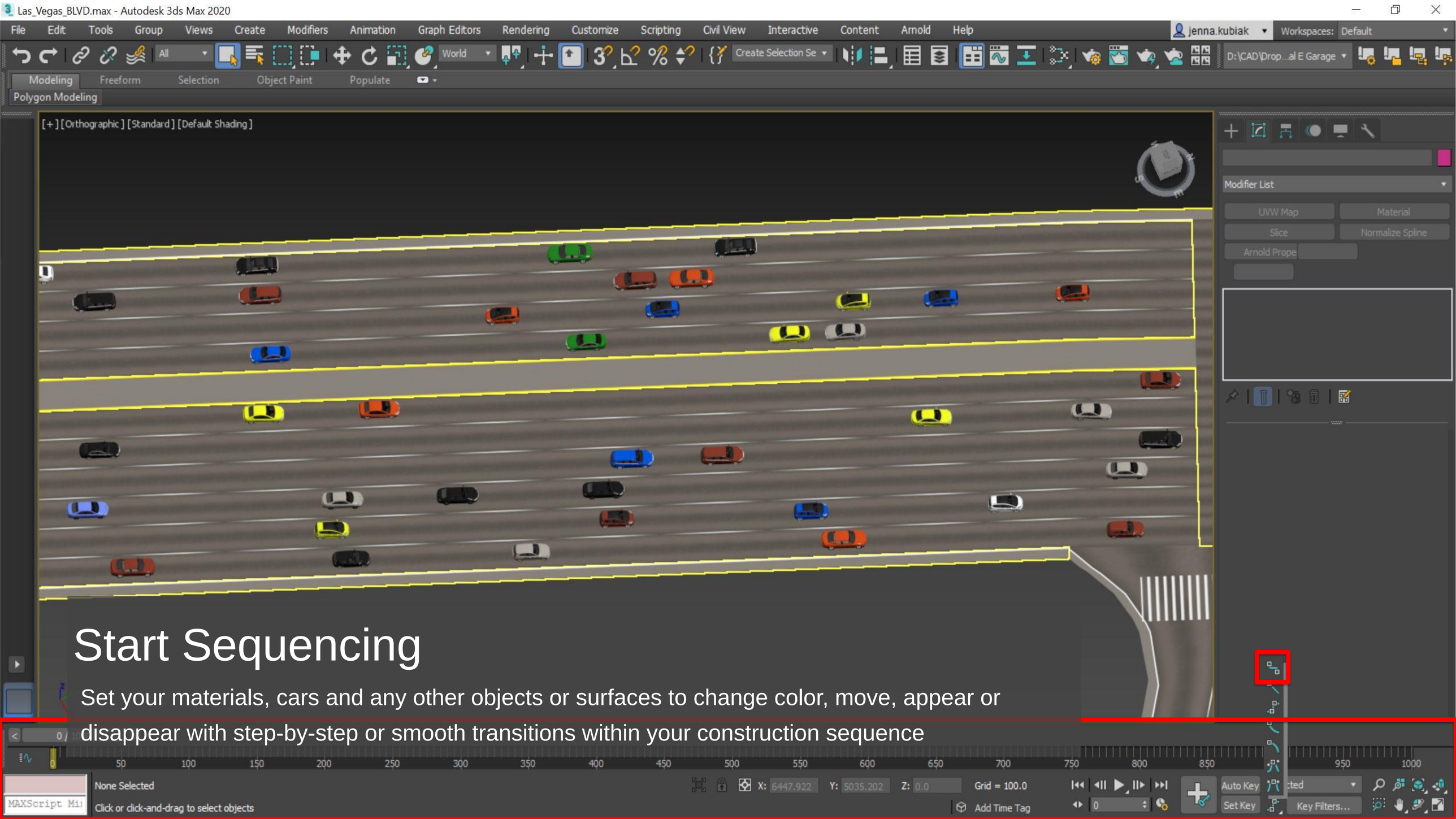
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Object001
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Material
Editable Mesh
Vertex
Edge
Face
Polygon
Parameters
Material ID: 3
Apply a material modifier
In our multi-sub, Material ID 3 corresponds to the new pavement
1 Object Selected
Click or click-and-drag to select objects
Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...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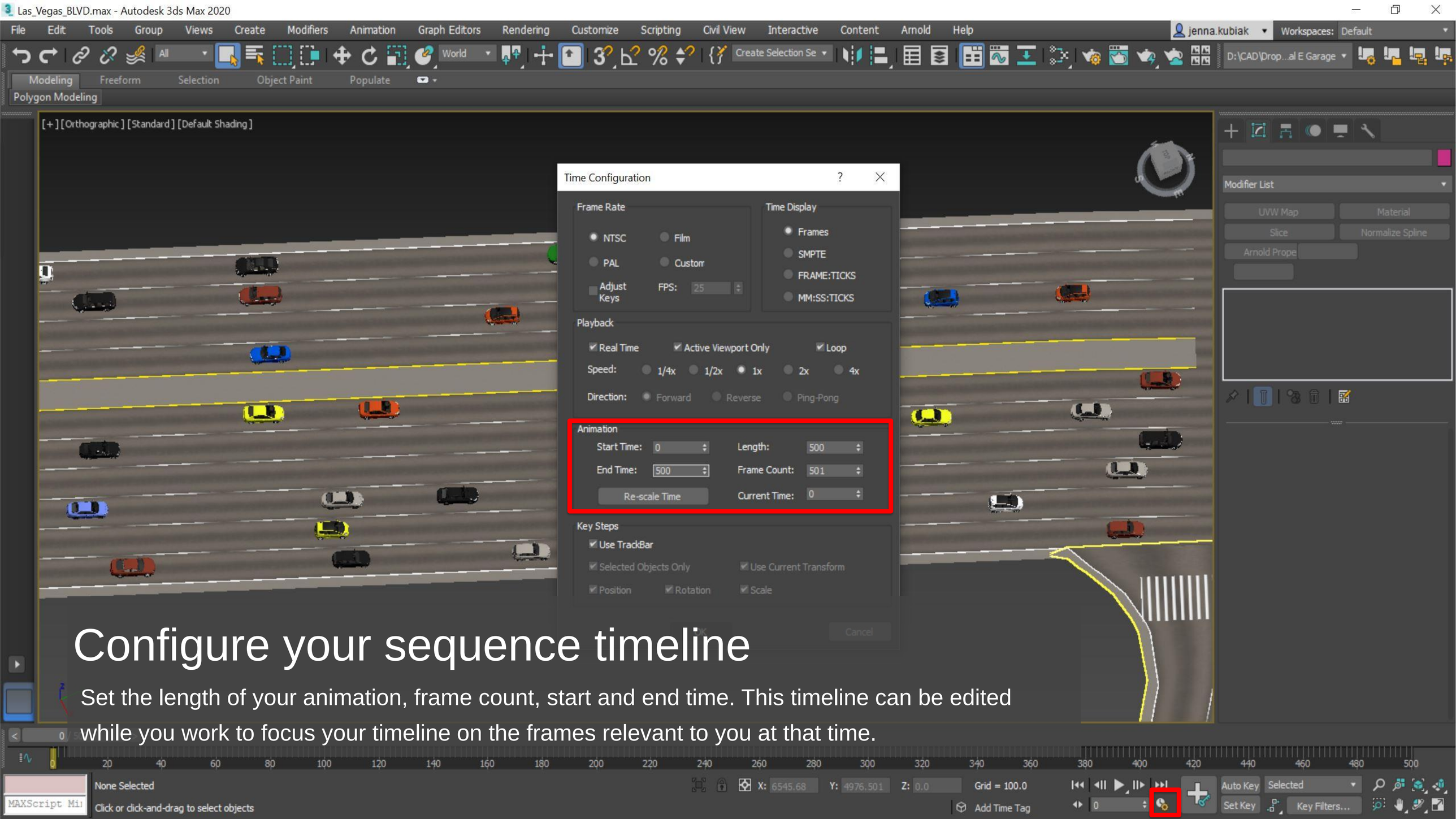
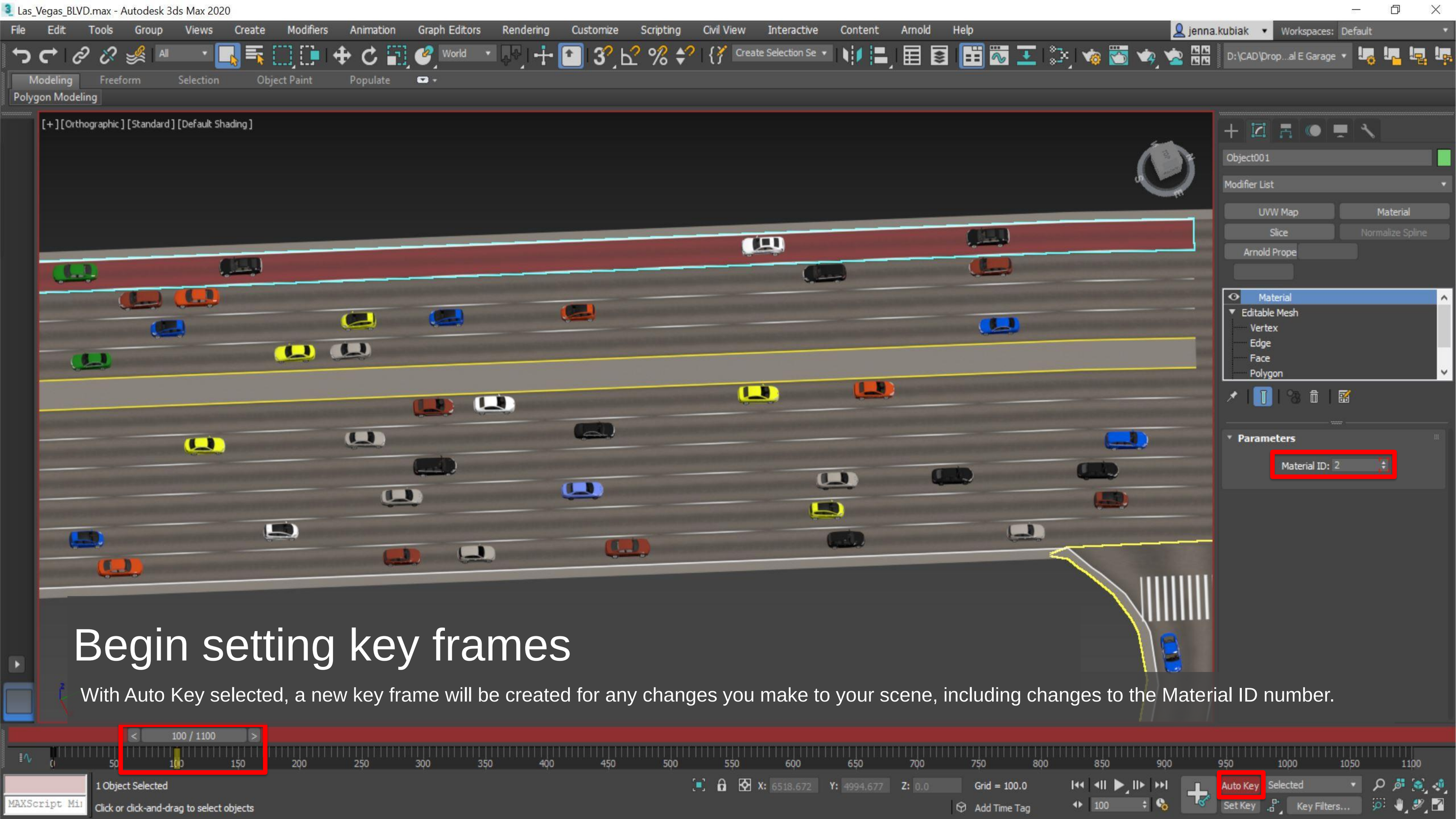
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Modifier List
UVW Map
Material
Slice
Normalize Spline
Start Sequencing
Set your materials, cars and any other objects or surfaces to change color, move, appear or disappear with step-by-step or smooth transitions within your construction sequence
None Selected
Click or click-and-drag to select objects
Add Time Tag
Auto Key
Set Key
Key Filters...



Configure your sequence timeline

Set the length of your animation, frame count, start and end time. This timeline can be edited while you work to focus your timeline on the frames relevant to you at that time.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Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Object001
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Material
Editable Mesh
Vertex
Edge
Face
Polygon
Parameters
Material ID: 2
Begin setting key frames
With Auto Key selected, a new key frame will be created for any changes you make to your scene, including changes to the Material ID number.
100 / 1100
1 Object Selected
Click or click-and-drag to select objects
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...

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jenna.kubiak Workspaces: Default

Modeling Freeform Selection Object Paint Populate

Polygon Modeling

[+] [Orthographic] [Standard] [Default Shading]

Object001

Modifier List

UVW Map Material

Slice Normalize Spline

Arnold Prope

Material

Editable Mesh

Vertex

Edge

Face

Polygon

Parameters

Material ID: 3

200 / 1100

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100

1 Object Selected

Click or click-and-drag to select objects

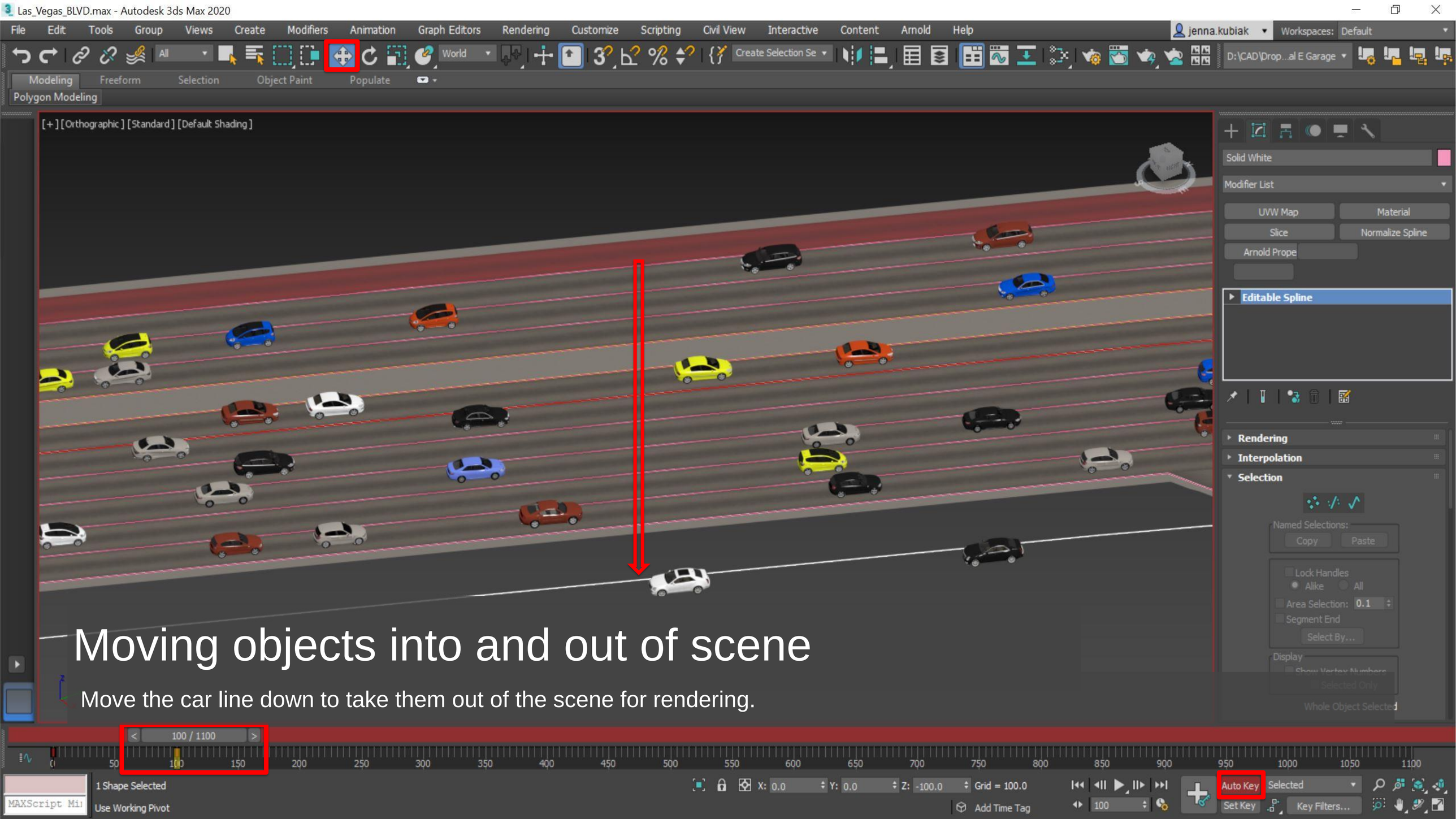
X: 6320.767 Y: 4997.206 Z: 0.0 Grid = 100.0

Add Time Tag

Auto Key Selected

Set Key Key Filters...

200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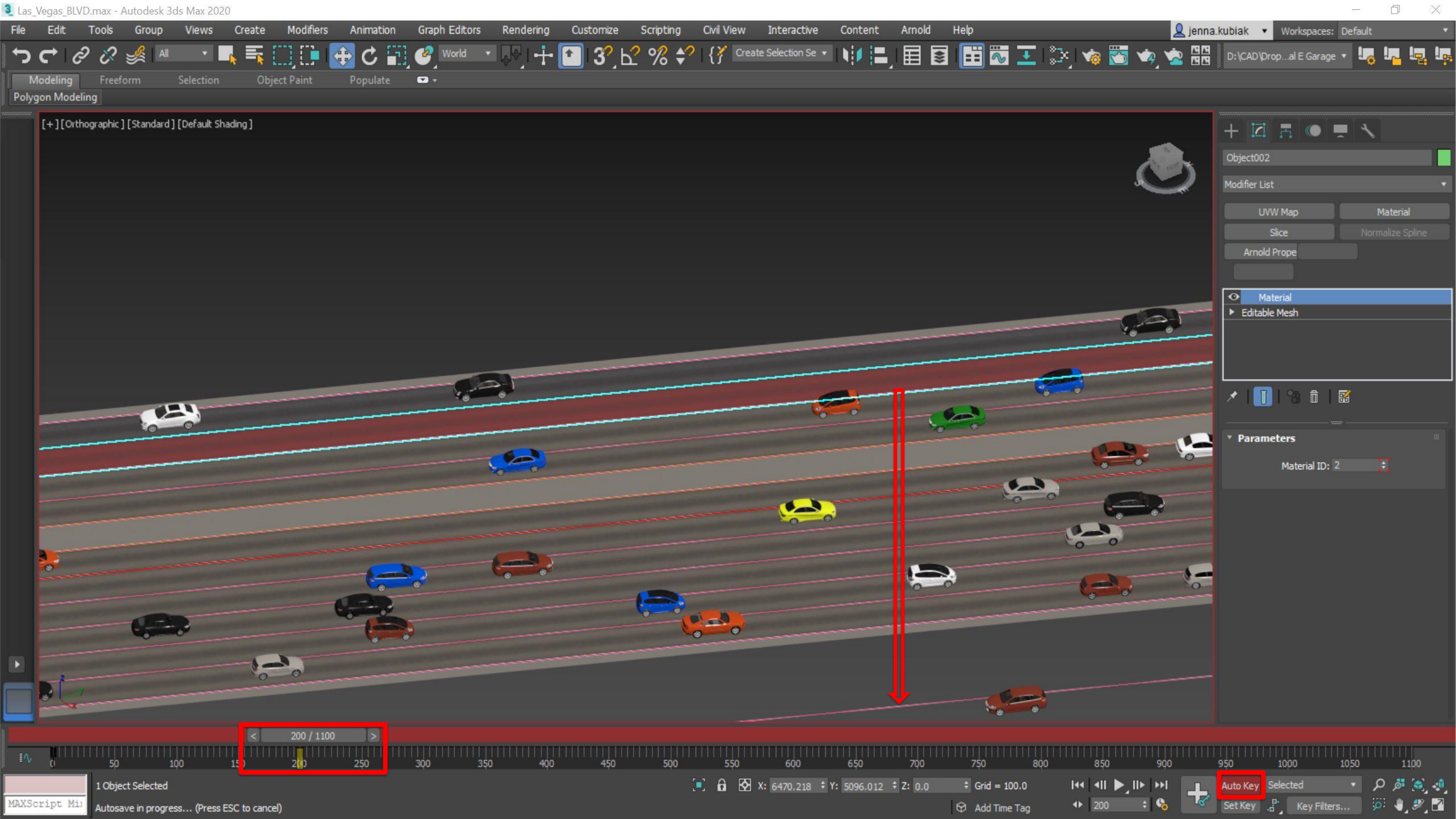
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Solid White
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Editable Spline
Rendering
Interpolation
Selection
Named Selections:
Copy
Paste
Lock Handles
Alike
All
Area Selection: 0.1
Segment End
Select By...
Display
Moving objects into and out of scene
Move the car line down to take them out of the scene for rendering.
100 / 1100
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100
1 Shape Selected
Use Working Pivot
X: 0.0 Y: 0.0 Z: -100.0 Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...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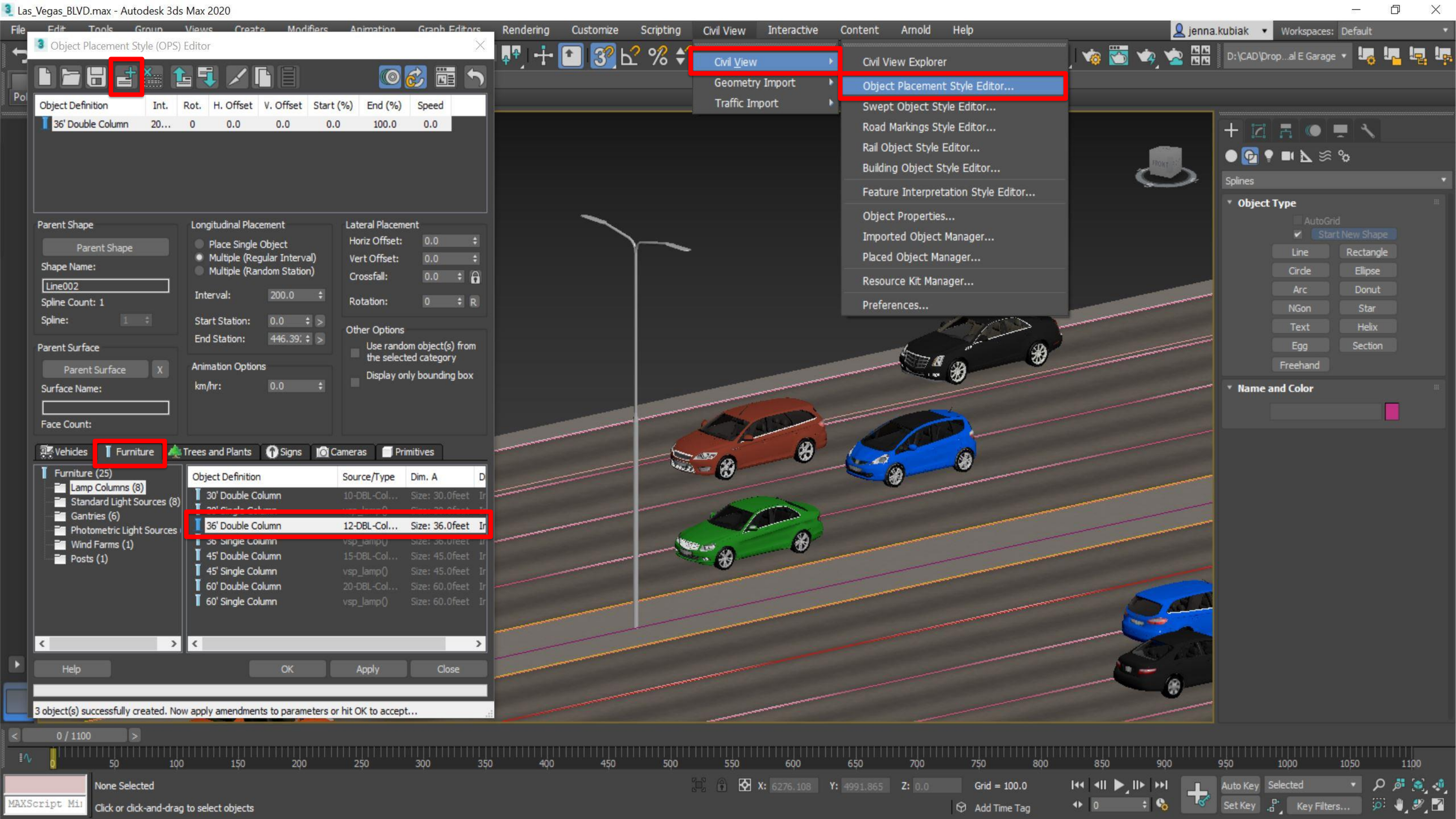
jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Object002
Modifier List
UVW Map
Material
Slice
Normalize Spline
Arnold Prope
Material
Editable Mesh
Parameters
Material ID: 2
200 / 1100
1 Object Selected
Autosave in progress... (Press ESC to cancel)
X: 6470.218 Y: 5096.012 Z: 0.0 Grid = 100.0
Add Time Tag
Auto Key
Selected
Set Key
Key Filters...
MAXScript Mi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Rendering Customize Scripting Civil View Interactive Content Arnold Help
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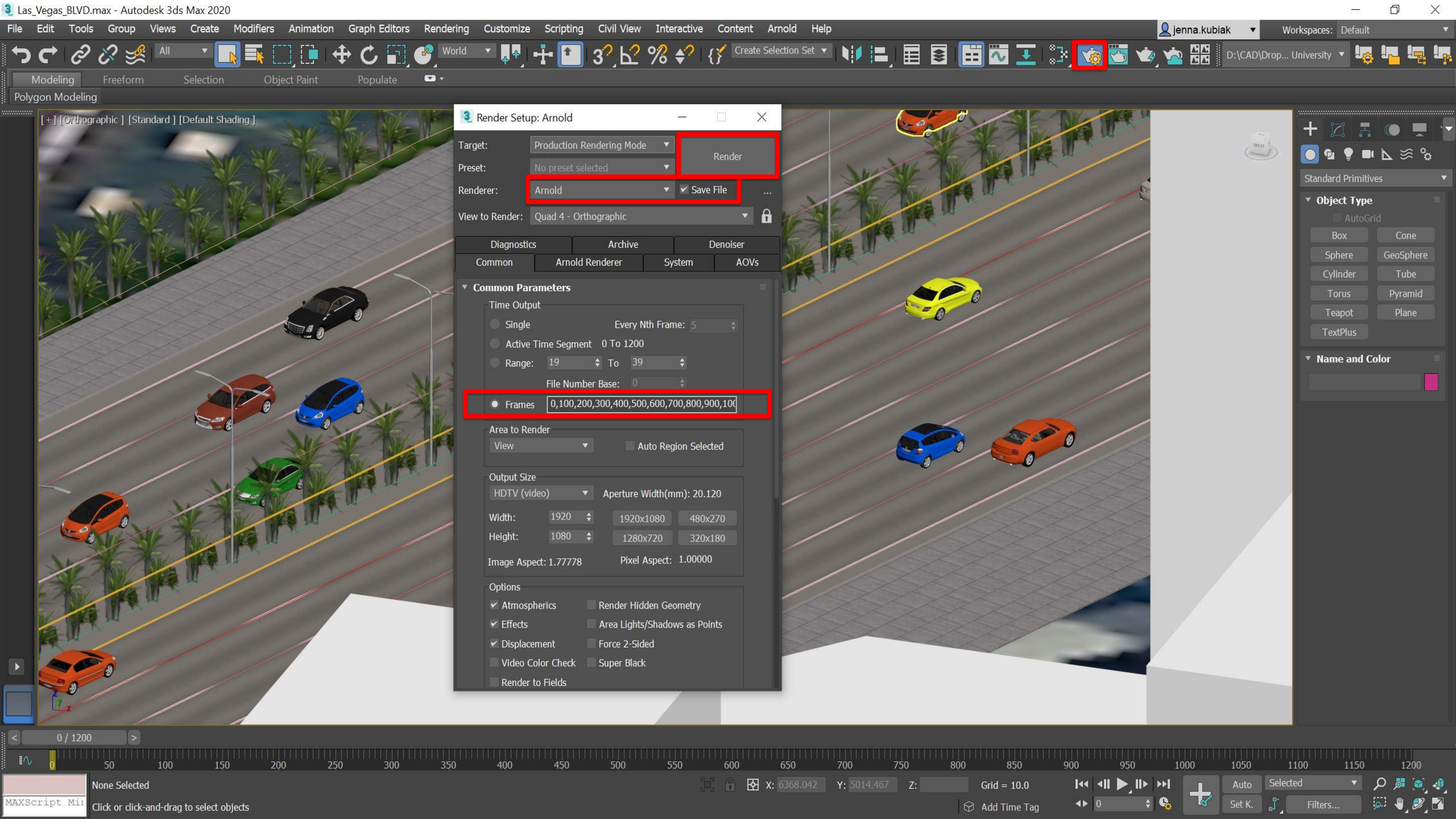
Workspaces: Default
Civil View
Geometry Import
Traffic Import
Civil View Explorer
Object Placement Style Editor...
Swept Object Style Editor...
Road Markings Style Editor...
Rail Object Style Editor...
Building Object Style Editor...
Feature Interpretation Style Editor...
Object Properties...
Imported Object Manager...
Placed Object Manager...
Resource Kit Manager...
Preferences...
Object Placement Style (OPS) Editor
Object Definition Int. Rot. H. Offset V. Offset Start (%) End (%) Speed
36' Double Column 20... 0 0.0 0.0 0.0 100.0 0.0
Parent Shape
Parent Shape
Shape Name:
Line002
Spline Count: 1
Spline:
Parent Surface
Parent Surface
Surface Name:
Face Count:
Longitudinal Placement
Place Single Object
Multiple (Regular Interval)
Multiple (Random Station)
Interval: 200.0
Start Station: 0.0
End Station: 446.39
Animation Options
km/hr: 0.0
Lateral Placement
Horiz Offset: 0.0
Vert Offset: 0.0
Crossfall: 0.0
Rotation: 0
Other Options
Use random object(s) from the selected category
Display only bounding box
Vehicles Furniture Trees and Plants Signs Cameras Primitives
Furniture (25)
Lamp Columns (8)
Standard Light Sources (8)
Gantries (6)
Photometric Light Sources
Wind Farms (1)
Posts (1)
Object Definition Source/Type Dim. A
30' Double Column 10-DBL-Col... Size: 30.0feet
36' Double Column 12-DBL-Col... Size: 36.0feet
45' Double Column 15-DBL-Col... Size: 45.0feet
45' Single Column vsp_lamp() Size: 45.0feet
60' Double Column 20-DBL-Col... Size: 60.0feet
60' Single Column vsp_lamp() Size: 60.0feet
Help
OK
Apply
Close
3 object(s) successfully created. Now apply amendments to parameters or hit OK to accept...
Splines
Object Type
AutoGrid
Start New Shape
Line Rectangle
Circle Ellipse
Arc Donut
NGon Star
Text Helix
Egg Section
Freehand
Name and Color
0 / 1100
None Selected
Click or click-and-drag to select objects
X: 6276.108 Y: 4991.865 Z: 0.0
Grid = 100.0
Add Time Tag
Auto Key Selected
Set Key Key Filters...
MAXScript Mi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jenna.kubiak
Workspaces: Default
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
[+] [Orthographic] [Standard] [Default Shading]
Render Setup: Arnold
Target: Production Rendering Mode
Preset: No preset selected
Renderer: Arnold
Save File
View to Render: Quad 4 - Orthographic
Render
Diagnostics Archive Denoiser
Common Arnold Renderer System AOVs
Common Parameters
Time Output
Single Every Nth Frame: 5
Active Time Segment 0 To 1200
Range: 19 To 39
File Number Base: 0
Frames 0,100,200,300,400,500,600,700,800,900,100
Area to Render
View
Auto Region Selected
Output Size
HDTV (video)
Aperture Width(mm): 20.120
Width: 1920
Height: 1080
1920x1080 480x270
1280x720 320x180
Image Aspect: 1.77778
Pixel Aspect: 1.00000
Options
Atmospherics
Effects
Displacement
Video Color Check
Render to Fields
Render Hidden Geometry
Area Lights/Shadows as Points
Force 2-Sided
Super Black
Standard Primitives
Object Type
AutoGrid
Box Cone
Sphere GeoSphere
Cylinder Tube
Torus Pyramid
Teapot Plane
TextPlus
Name and Color
0 / 1200
None Selected
Click or click-and-drag to select objects
Grid = 10.0
Add Time Tag
Auto
Set K.
Selected
Filters...

Questions?

Thank you!