



Connected by Construction:

Linking People Through
Transportation

By: Charli Vaillancourt

Solving the Puzzle Together



How important teamwork is to successfully complete a project.



How effective project completion requires constant communication between all parties including subcontractors, equipment operators, laborers, etc.



How the University of Maine plays a part in solving the overall puzzle by providing classroom education and improving time management and communication skills.

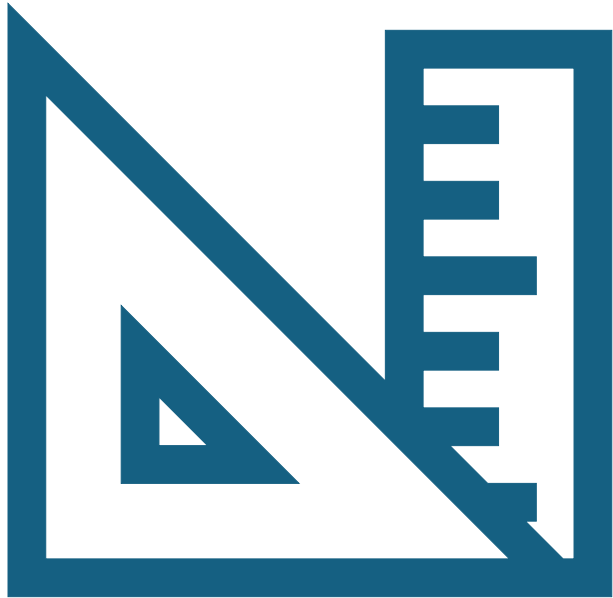
What is the Puzzle?

Construction projects that improve means of transportation are the physical puzzle pieces that connect people and places.

- Roads connect people and places from point A to point B.
- Bridges connect a path that was once unpassable.
- Airports create global connections.

Teamwork in Construction

Design and Planning:



- Engineers determine project requirements and building codes to create the necessary plans for a successful project.
- Blueprints and CAD models are used to relay specific information to those working on the job.
- Teamwork with estimators ensure a cost effective, buildable design.

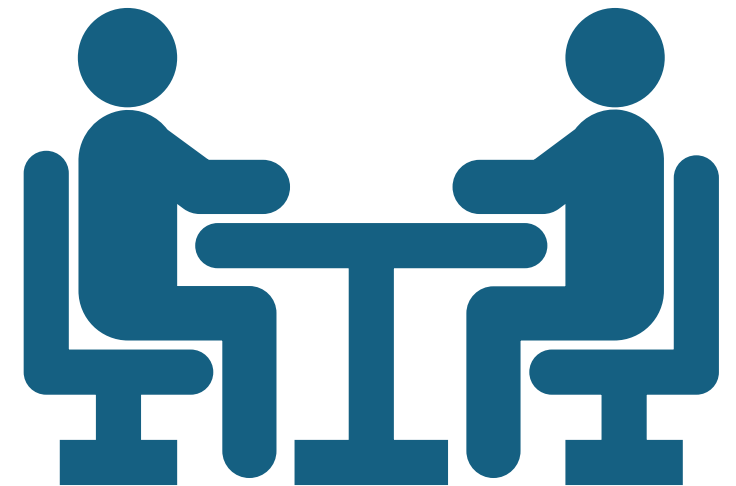
On the Job:

- Superintendents oversee scheduling, communicate plans to foremen, execute safety meetings, and make sure the appropriate equipment is delivered for the job.
- Foremen communicate with operators and laborers, directing and managing daily tasks.
- Operators operate the heavy machinery needed to excavate material and assist in tasks that are impossible to do by hand.
- Laborers perform hands-on simpler tasks to help foreman and operators.



In the Office:

- Project managers communicate with stakeholders to ensure the project is completed on time and within budget.
- Communication with superintendents is beneficial when it comes to material lists, timelines, and maintaining the set budget.
- For highway jobs, like the Saco 112 expansion, it is critical to work together with the state of Maine, DOT, and city council to determine work times and certain regulations.



The Role of University



THE UNIVERSITY OF
MAINE

Attending the University of Maine, or any other University may seem like a small piece of the puzzle, but it helps build skills which make completing a project and climbing the latter easier.

The University of Maine's Impact on Success:

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graph TD; A["The University of Maine's Impact on Success:"] --- B["Time management developed from completing assignments with specific due dates."]; A --- C["Teamwork experience gained from working on group projects and presentations."]; A --- D["Classroom skills including mathematics, CAD modeling, and critical thinking."];
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Time management developed from completing assignments with specific due dates.

Teamwork experience gained from working on group projects and presentations.

Classroom skills including mathematics, CAD modeling, and critical thinking.

Sargent Summer Internship

CONCEPT PLAN MAINE TURNPIKE - EXIT 36 ROUTE 112 BYPASS TO I-195

REFERENCES:

1. PARCEL LINES BASED UPON TAX ASSESSOR DATA BASE FROM CITY OF SACO GIS MAPPING

NOTES:

1. THIS CONCEPT PLAN HAS BEEN PREPARED BY THE CITY OF SACO FOR THE PURPOSES OF DISCUSSION WITH MAINE DOT AND MTA TO CONSIDER LONG-RANGE PLANS FOR ALLEVIATING THE TRAFFIC CONGESTION ISSUES ALONG THE ROUTE 112 CORRIDOR. THIS CONCEPT PLAN HAS NOT BEEN BENEFITTED BY ANY FORMAL ENGINEERING OR ENVIRONMENTAL STUDIES TO REFINE THE ROUTE. THESE STUDIES WOULD OCCUR IN THE FUTURE IF ALL PARTIES CONCUR WITH THE MERITS OF THIS LONG-TERM PLANNING PROPOSAL.

GRAPHIC SCALE:

0 200' 400' 800' 1,200'

During my internship at Sargent, I learned and aided in the transition from plans to the real world on the Saco Route 112 expansion site.

As a mechanical engineering student my studies are mainly on objects and systems that move and interact but this summer, I was able to experience the civil work on stationary objects that are built to stay put.

About the Saco Jobsite:

- Improves the Route 112 bridge in Saco Maine and adjacent roads.
- A \$42 million dollar project
- Includes a new Exit 35, on and off ramps, toll plaza, new sidewalks, and a replacement of the bridge deck pavement and membrane.
- This job will improve traffic patterns and reduce buildup in specific areas.





Operating a pipe saw.



Laying type C drainage pipe.



Installing drainage structures.



Raising tops of drain basins.



Moving a small section of waterline for a hydrant.



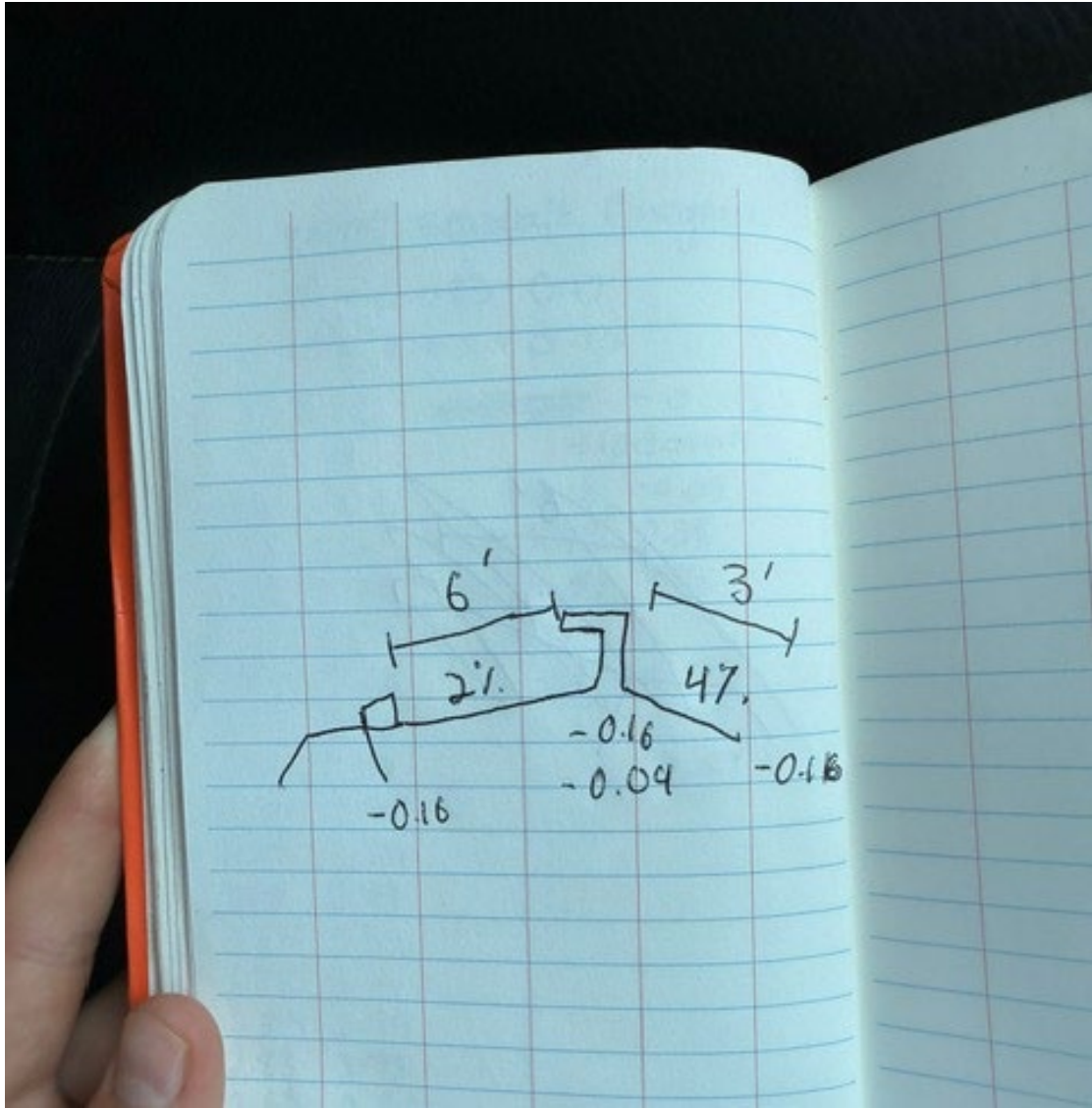
Fine grading for sidewalks.



Propper communication with operators and other construction personnel.







7/2/25

~~curb~~ ~~5'~~ ~~5'~~ ~~11'~~ ~~11'~~

	subgrade			
curb	3'	5'	11'	
5.80	6.10	6.06	5.94	1
4.90	6.00	5.96	5.84	2
4.79	5.89	5.85	5.73	3
4.68	5.78	5.74	5.62	4
4.57	5.67	5.63	5.51	5
4.40	5.50	5.46	5.34	6
4.27	5.37	5.33	5.21	7
4.12	5.22	5.18	5.06	8
3.97	5.07	5.03	4.91	9
3.81	4.91	4.87	4.75	10
3.67	4.77	4.73	4.61	11

$4' \times 0.083 = 0.332$
 $4' \times 0.02 = 0.08$
 $11' \times 0.02 = 0.22$
 $0.33 - 0.1 = 0.23 @ 5'$
 $0.33 - 0.22 = 0.11 @ 11'$
 $0.33 - 0.08 = 0.25 @ 4'$
 ~~$0.33 - 0.02$~~
 $0.33 - 0.22 = 0.11 @ 11'$

My coursework in mechanical engineering at the University of Maine allowed me to develop practical tools and ways of thinking which I use on the daily basis and during my summer internship. CAD courses helped me read and understand construction plans and mathematics allowed me to do engineering calculations on the job. Together, these “puzzle pieces” have given me a strong foundation which has become useful in both internship and everyday situations.

The Importance of Transportation in Everyday Life



Paved roads allow individuals to drive to and from work more efficiently.



Highways such as 95 allow for quicker travel between university and home.



Planes turn long distance travel into quick trips while additionally helping global business.



Sidewalks and paths make foot traffic safer and more accessible.

Construction projects, such as the Saco Maine 112 expansion job, are the key pieces to an even bigger puzzle of improving everyday transportation. Working for Sargent increased my appreciation for those in charge of managing such projects and I'm so grateful I was able to be apart of such an important project.

THE END

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