

Information Design and Visualization

The interdisciplinary study of
“the visual representation of large-scale collections
of non-numerical information, such as files and lines
of code in software systems”

Michael Friendly, Professor of Psychology, York University

Information graphics are
the visual representations of information,
data, or knowledge, used where complex
information needs to be explained quickly,
accurately, and clearly

Doug Newsom and Jim Haynes, *Public Relations Writing: Form and Style*

The purpose of visualization is insight, not pictures.

Ben Shneiderman (1999)

Today, visualization has the potential to become a mass medium. Engagement—grabbing and keeping the attention of a viewer—is the key to its broader success. The clearest, most precise graphic in the world communicates nothing if nobody looks at it.

How To Make Data Look Sexy (2011)
Fernanda Viegas and Martin Wattenberg

Infoporn

Information which serves no purpose other than
to hold the attention of its audience

Wikipedia

LISA'S COLD
+ timeline

3.17	3.18	3.19	3.20	3.21	3.22	3.23	3.24	3.25	3.26	
Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
sore throat										
fever						fever				
		runny nose								
	stuffy nose						stuffy nose			
				hackling cough						
				vomiting						
sneezing							sneezing			
						bloody nose				
						dizzy		dizzy	idzzy	
headache		headache						headache		

Data

Information

Intelligence

Evidence

History

Size

Weight

Distance

Frequency

Appearance

Quantitative

Qualitative

Measurable

Immeasurable

Hard Data

Anecdotal

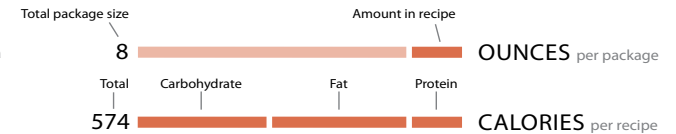
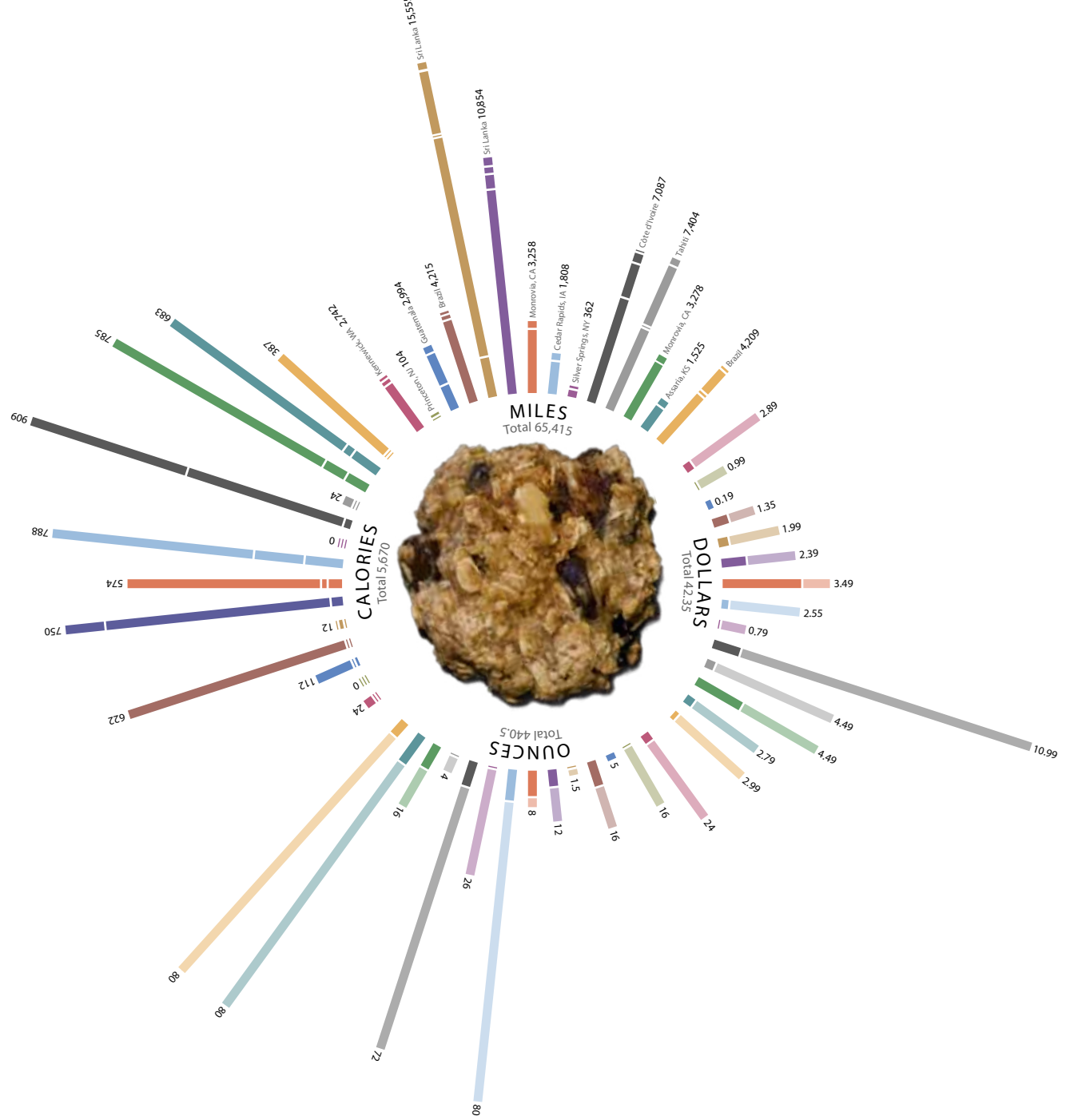
- Mott's **APPLESAUCE** The Fresh Grocer
- Arm and Hammer **BAKING SODA** Shop Rite
- Chiquita **BANANA** Trader Joe's
- Domino **BROWN SUGAR** The Fresh Grocer
- Trader Joe's **CINNAMON** Trader Joe's
- Whole Foods **SHREDDED COCONUT** Whole Foods
- Trader Joe's **DRIED CHERRIES** Trader Joe's
- Quaker **OLD-FASHIONED OATS** The Fresh Grocer
- Morton's **SALT** The Fresh Grocer
- Nestlé **CHOCOLATE CHIPS** BJ's Wholesale Club
- Trader Joe's **VANILLA EXTRACT** Trader Joe's
- Trader Joe's **WALNUTS** Trader Joe's
- King Arthur **FLOUR** Shop Rite
- Domino **WHITE SUGAR** Shop Rite

OAT EVERYTHING COOKIES

From the World to My Kitchen to Your Mouth
Alyssa Rosenzweig

For even the simplest of recipes, considerable amounts of resources are spent to bring all the ingredients together into one, delicious item. This project was an attempt to determine how each ingredient in my Oat Everything Cookies made it from the world to my kitchen in Philadelphia to your mouth.

Sources ranged from USDA reports and grower's associations (like the American Sugar Alliance) to sea freight patterns to personal contact with local grocery managers, distributors and individual company representatives



Mapping Tchaikovsky

A Visual Orchestral Score of the 1812 Overture



Go to Beginning | Go to End | Scroll | Stop Scroll |



3 2 1

tips for *happiness*

a collection of 321 tips to be *happy*. everyone is in search of it. everyone is in desperate need of it. click here if you're feeling lucky!

NOUNS

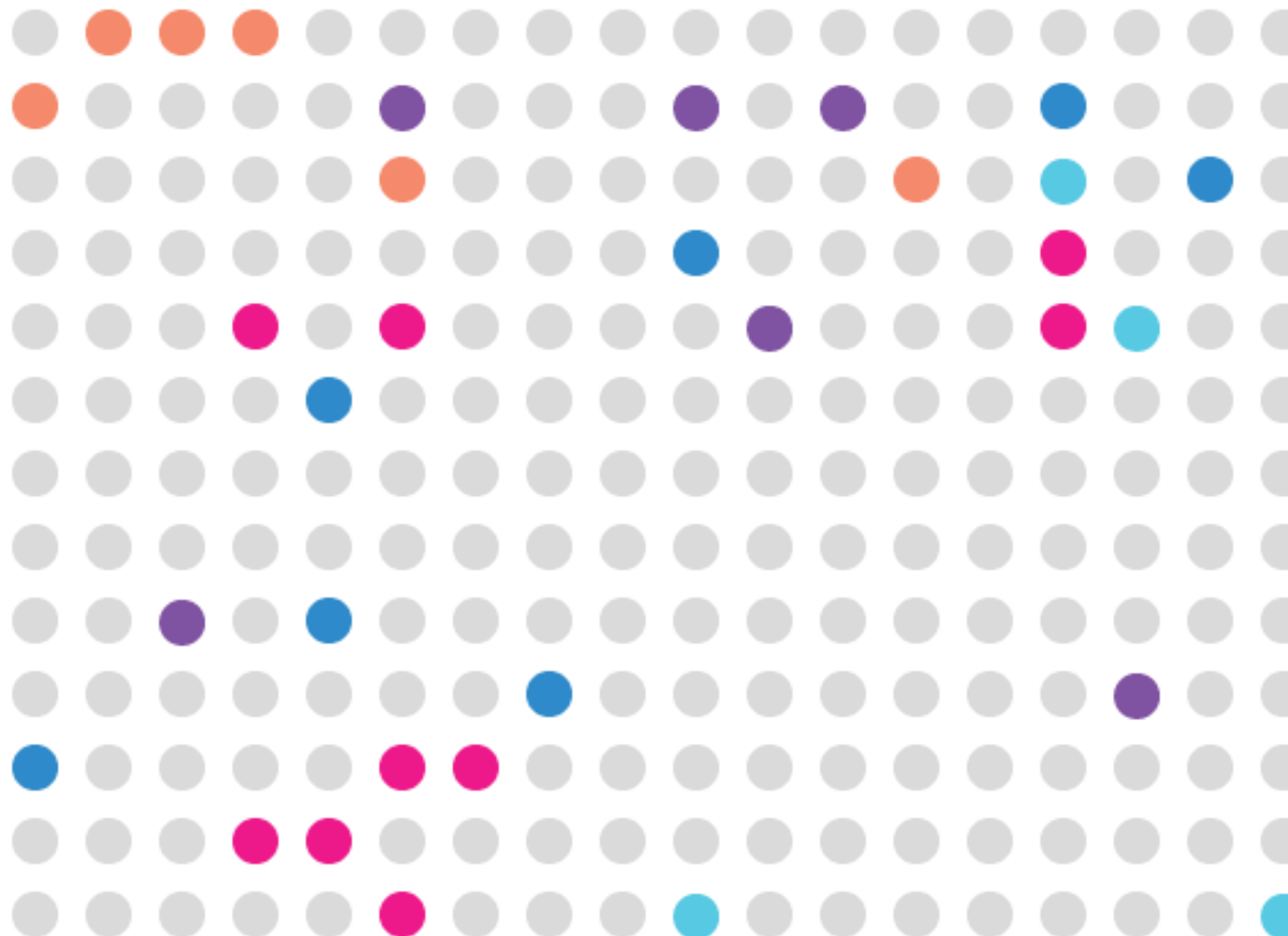
Energy
Friends
Happy[11]
Live
Love
People
Stretch
Things
Time
Will
Yourself

VERBS

Be[17]
Develop
Do
Don't[10]
Find
Get[6]
Give
Have
Let
Make
Take[8]

SOURCES

Academics
Artists
Blogs
Books
Celebrities
Entrepreneurs
Media
Medicine
Psychology
Religion
Research



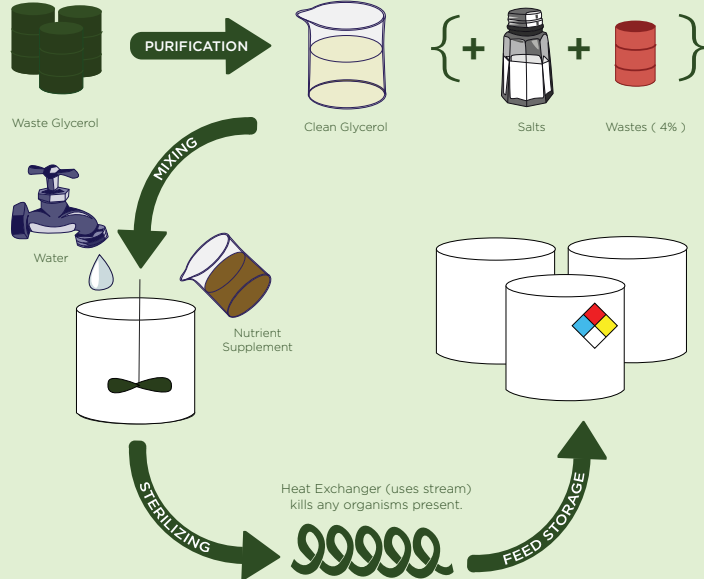
An Alternative to Corn-Derived Ethanol: Turning Waste Glycerol Into Fuel

Bacteria can grow on almost anything...

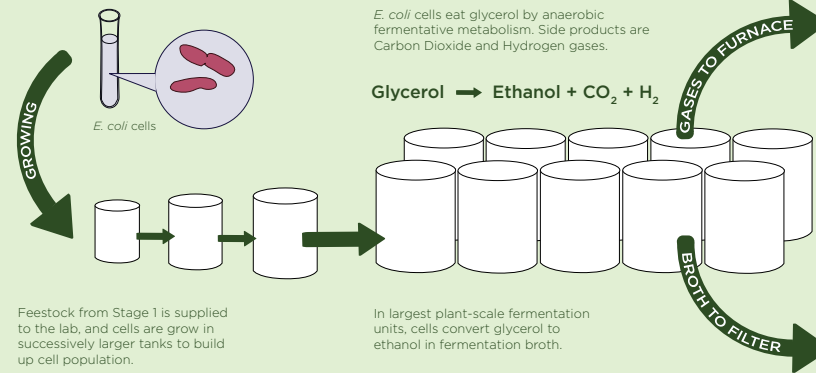
As you may know from personal experience! Do you drink beer? If you do, you may also know that when bacteria are deprived of oxygen, they ferment sugars to make ethanol in order to live. Bacteria can also ferment glycerol to make ethanol, which can be used as a fuel or as a fuel additive.

The scaled-up process for the fermentation of glycerol to ethanol has three stages, which are outlined here.

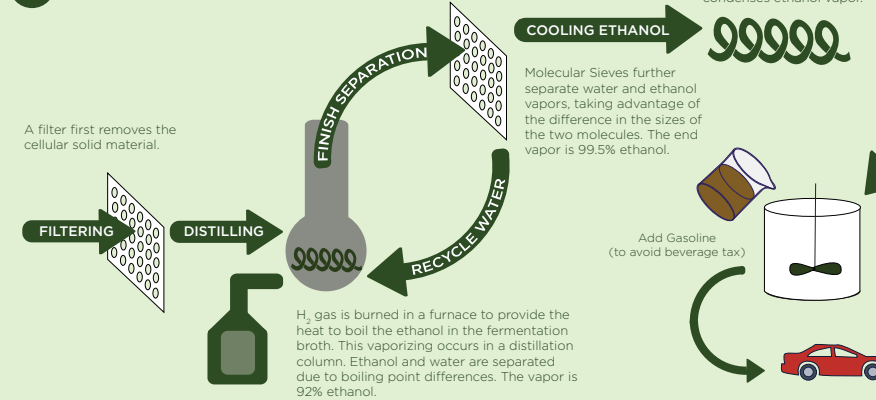
1 Glycerol Purification and Feedstock Preparation



2 Fermentation: From Lab Scale to Plant Scale



3 Separation: From Broth to Fuel



How is Glycerol Made?

Glycerol is a byproduct of the production of Biodiesel from vegetable oils.

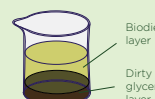
For every 100 kilograms of biodiesel produced, 10 kilograms of glycerol is produced.



Soybeans are an alternative crop that are known for restoring nutrients and balance to soil.



Soybean Oil is made from pressing the harvested beans. The oil is used for cooking, and then sent to biodiesel plants.



The used oil is reacted with alcohol to create biodiesel and glycerol, which separate into layers.

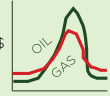


The glycerol produced during biodiesel manufacturing is not clean enough to be used for soap-making.



The crude glycerol is stored as waste. But how can it be used?

Why Make Ethanol?



Highly variable gasoline prices, political instability led to the desire for independence in States.



The Energy Policy Act of 2005 established the Renewable Fuel Standard (RFS), which requires that gasoline sold in the United States contain a minimum volume of renewable fuel. The volume of renewable fuel used in the United States in 2006 was 7.5 billion gallons.



The Act also prohibits restricting the sale of alternative fuels. The franchise agreement provision that requires a gas station owner to have more pumps for 85% ethanol gasoline.



Ethanol demand is rising. Prices will be high until political support for ethanol energy."

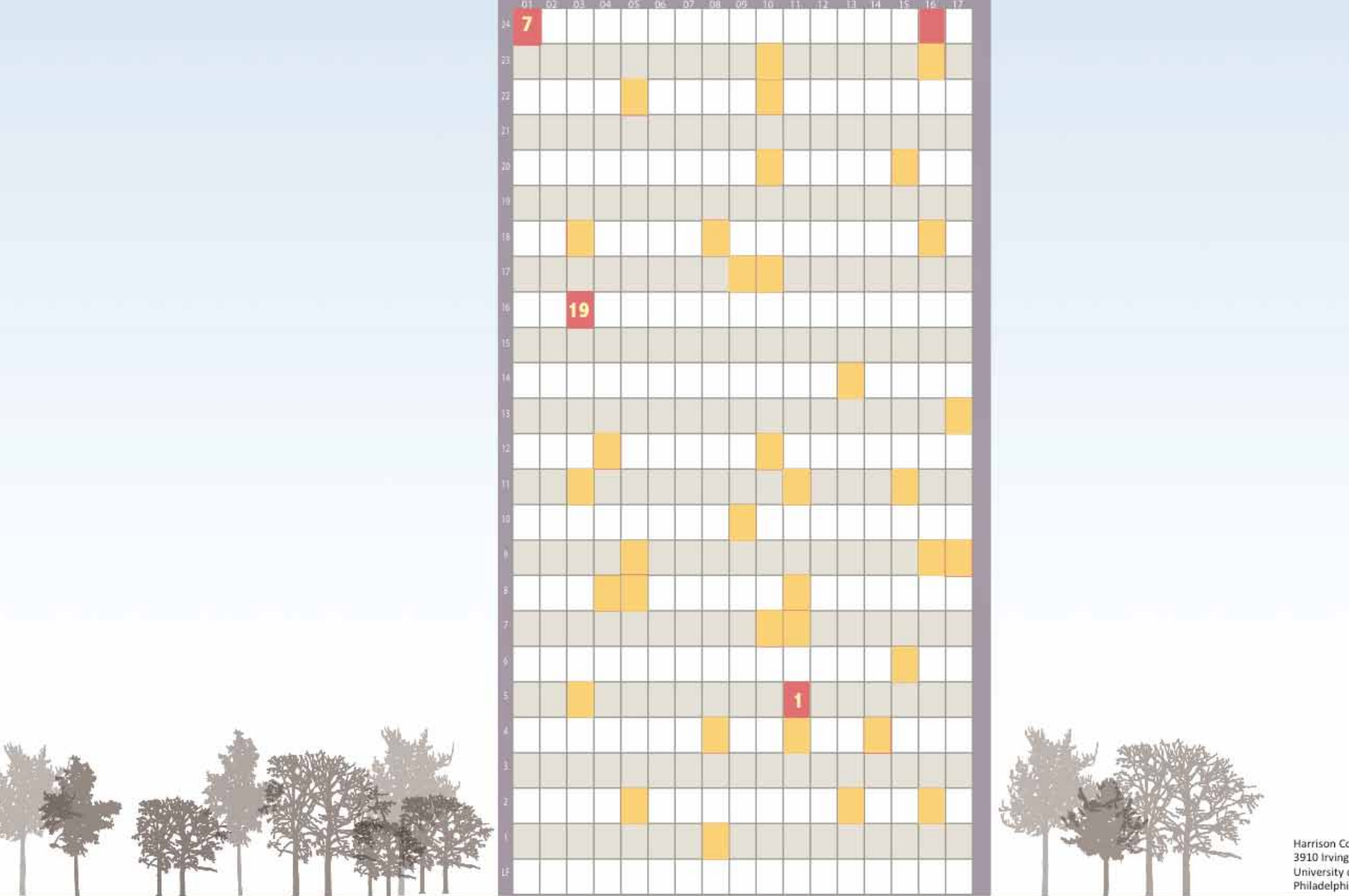
But, Why Use Glycerol?



Historically, ethanol is produced by fermentation processes, which require a source of sugar as food for microorganisms.



The most abundant and cheapest sugar source in the U.S. has been corn. However, the source has been debated in the "Fuel" discussion. Corn is a truly renewable energy independent source.



Harrison Co
3910 Irving
University of
Philadelph

Harrison Key Crisis

Built in 1970
Total Rooms: 354
Total Residents: 797

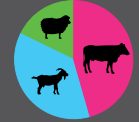


Legend

- Key Returned
- Key Signed Out for 'x' number of days

FROMAGES FRANÇAIS

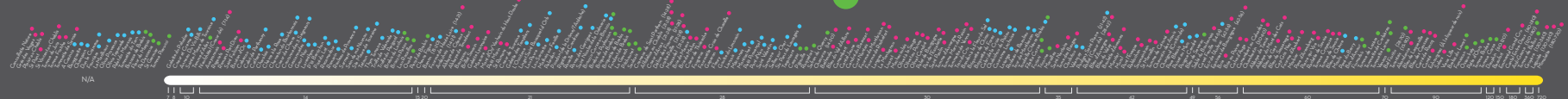
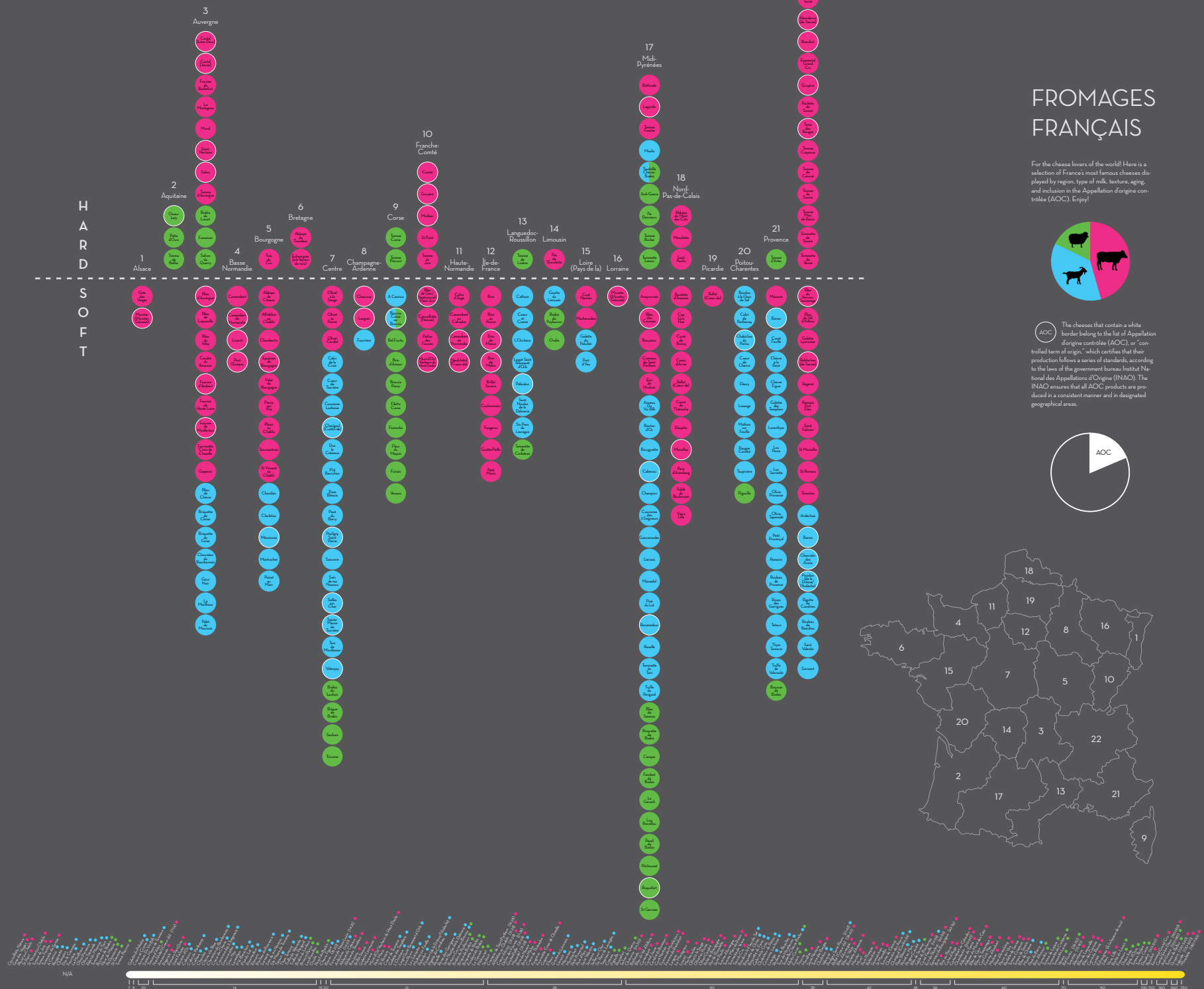
For the cheese lovers of the world! Here is a selection of France's most famous cheeses displayed by region, type of milk, texture, aging, and inclusion in the Appellation d'origine contrôlée (AOC). Enjoy!



The cheeses that contain a white border belong to the list of Appellation d'origine contrôlée (AOC), or "controlled term of origin," which certifies that their production follows a series of standards, according to the laws of the government bureau Institut National des Appellations d'Origine (INAO). The INAO ensures that all AOC products are produced in a consistent manner and in designated geographical areas.



H
A
R
D
S
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F
T



Why I Was Reading



BRYNN SHEPHERD

"An Open Book?"

Total Pages Read

44770

Average Date of Publication

1985

Earliest Date of Publication

1611

THE TEMPEST
BY WILLIAM SHAKESPEARE

Average Number of Pages Per Book

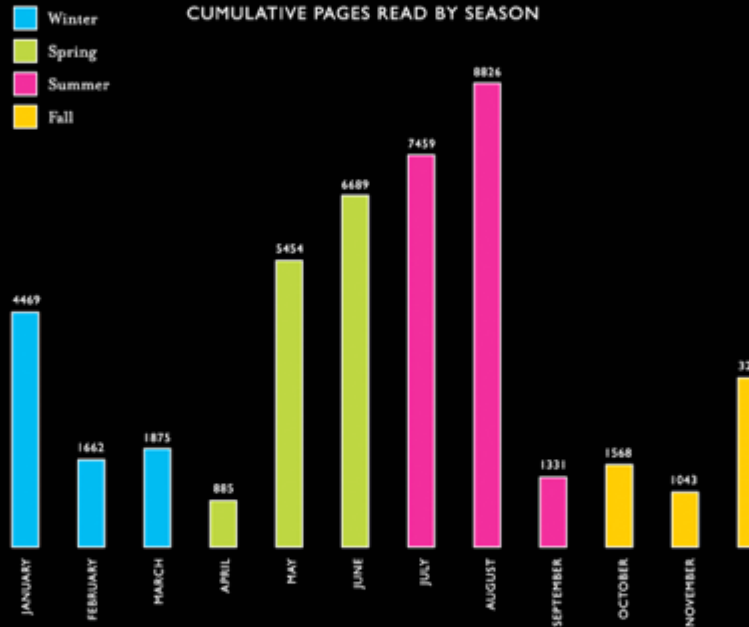
366.97

Greatest Number of Pages in Any Book

1344

THE POWER BROKER
BY ROBERT A. CARO

Type of Book

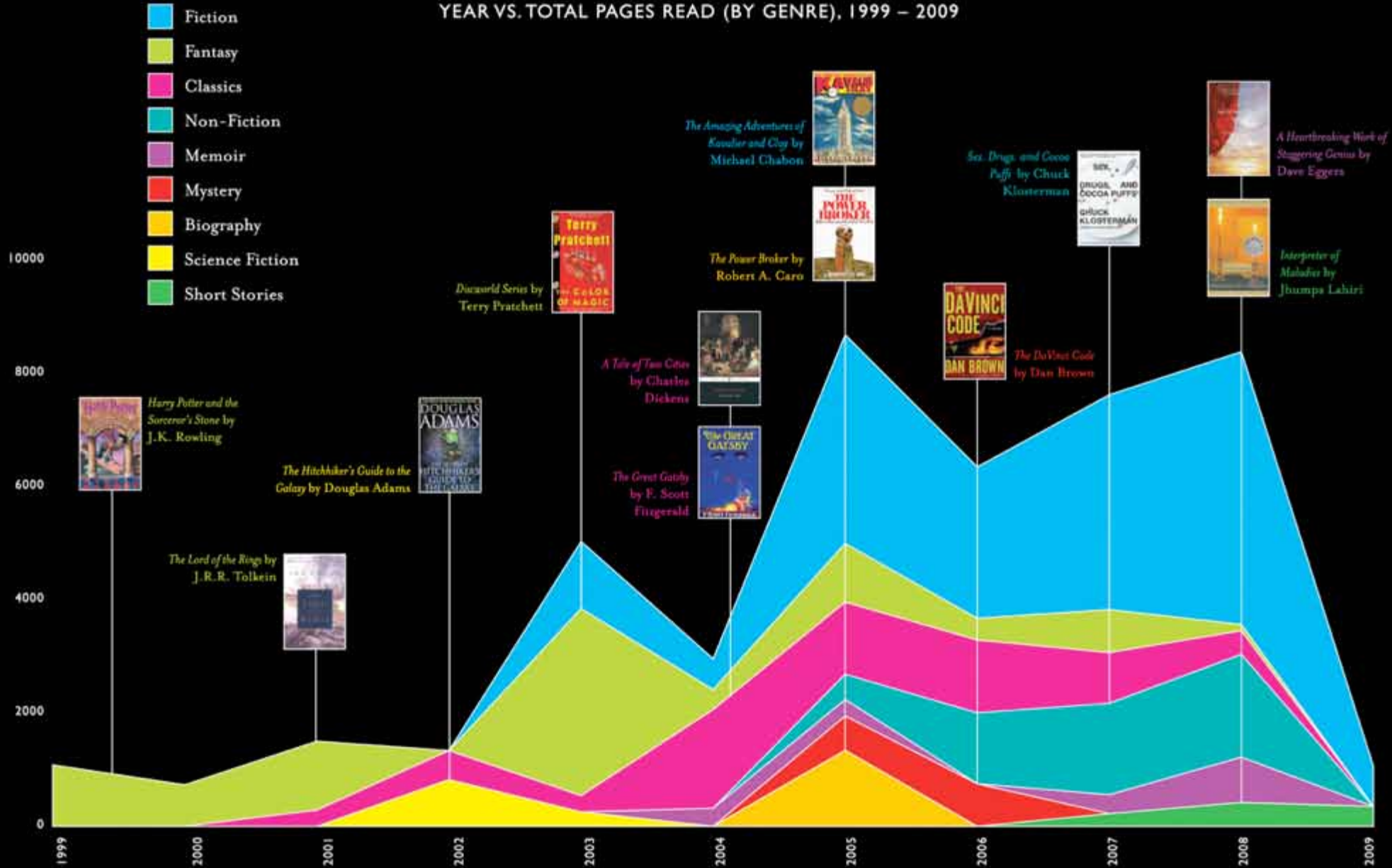


YEAR VS. TOTAL PAGES READ (BY GENRE), 1999 – 2009

- Fiction
- Fantasy
- Classics
- Non-Fiction
- Memoir
- Mystery
- Biography
- Science Fiction



YEAR VS. TOTAL PAGES READ (BY GENRE), 1999 – 2009



All information compiled and analyzed using www.goodreads.com and Google Spreadsheets.



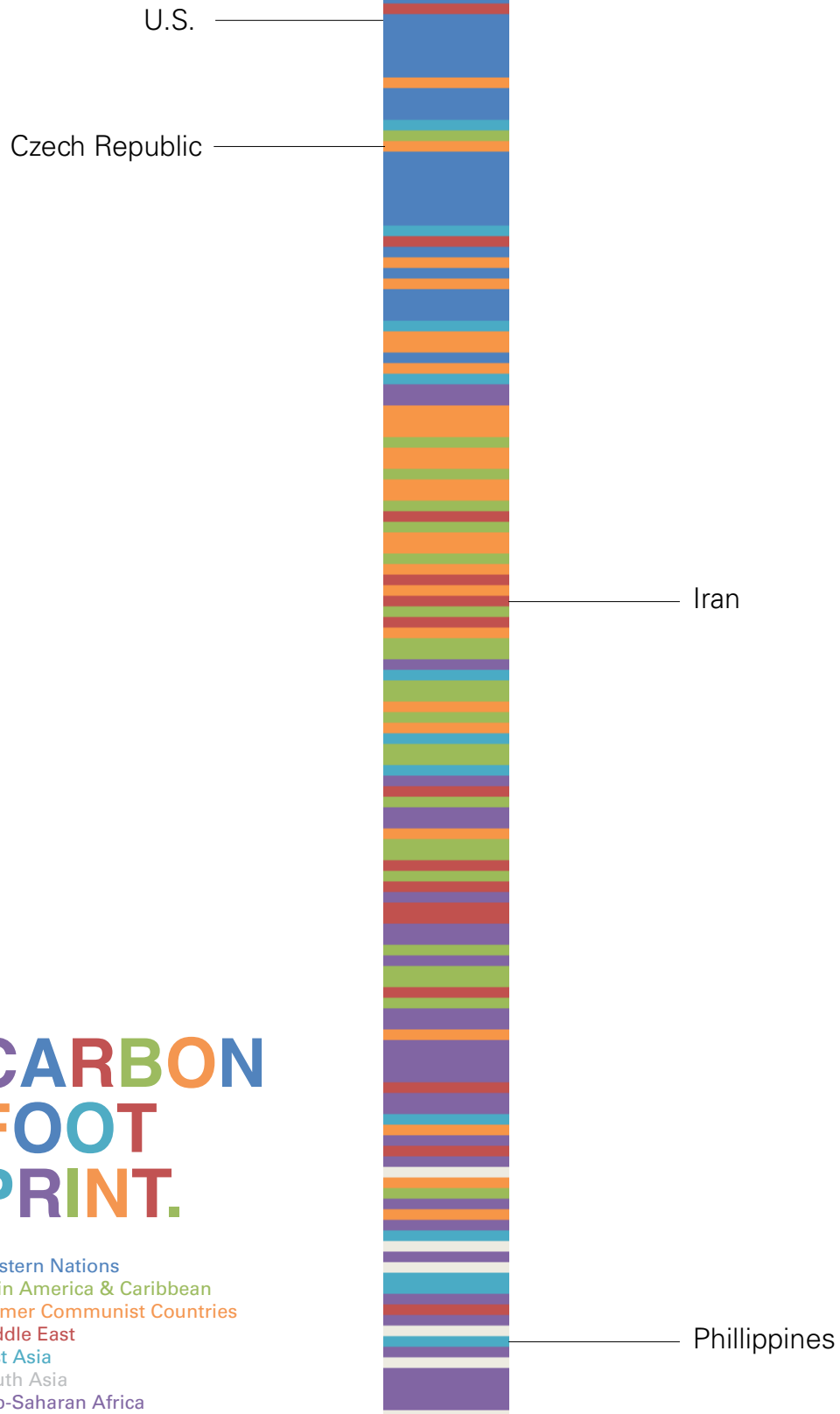
68 Tees

A brief autobiography based on Dan Knowlton's t-shirts acquired from 2005 to 2012.
View the collection online at: <http://danknowlton.com/info-vis/shirts>

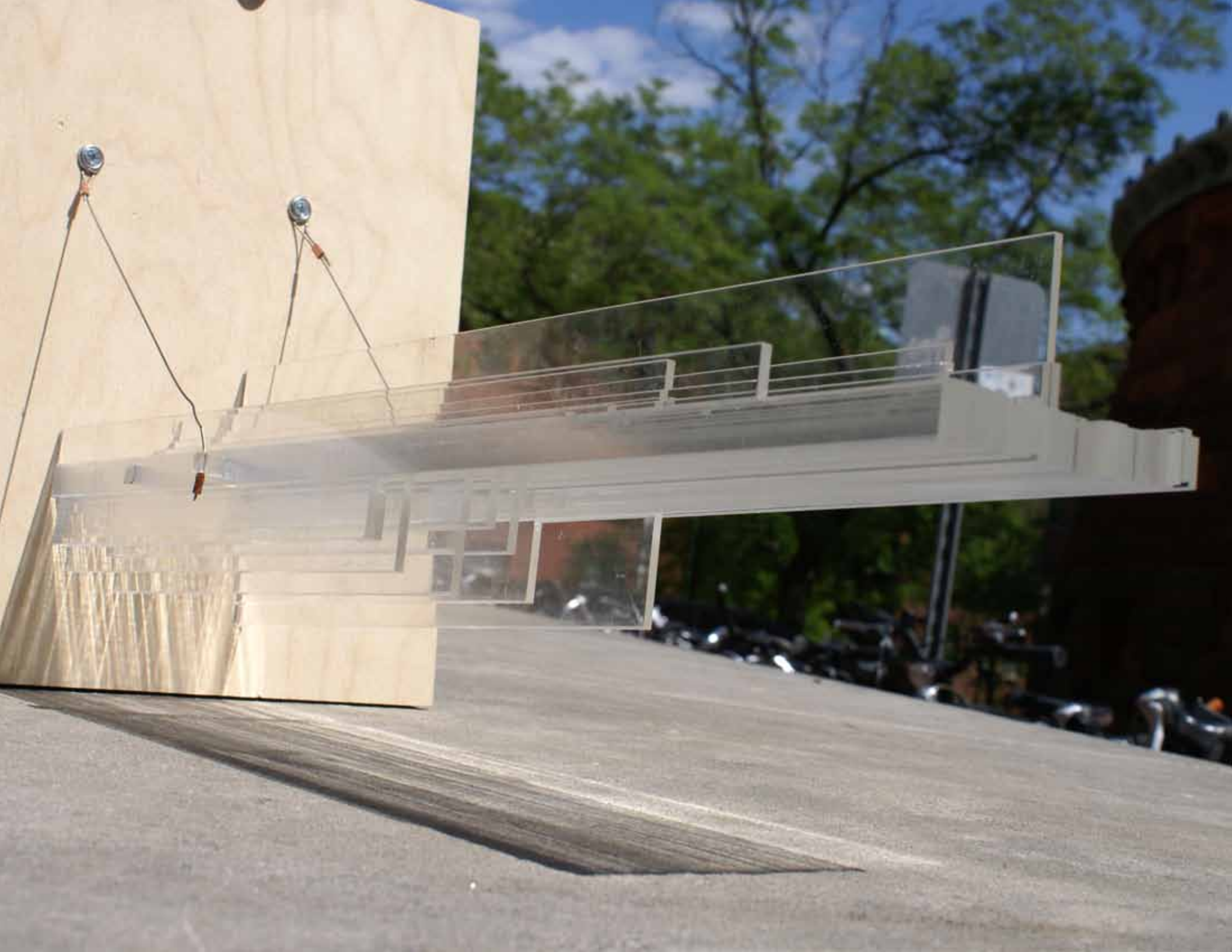
**A HAPPY
LIFE
SHOULD NOT
EQUAL
AN UNHAPPY
PLANET.**

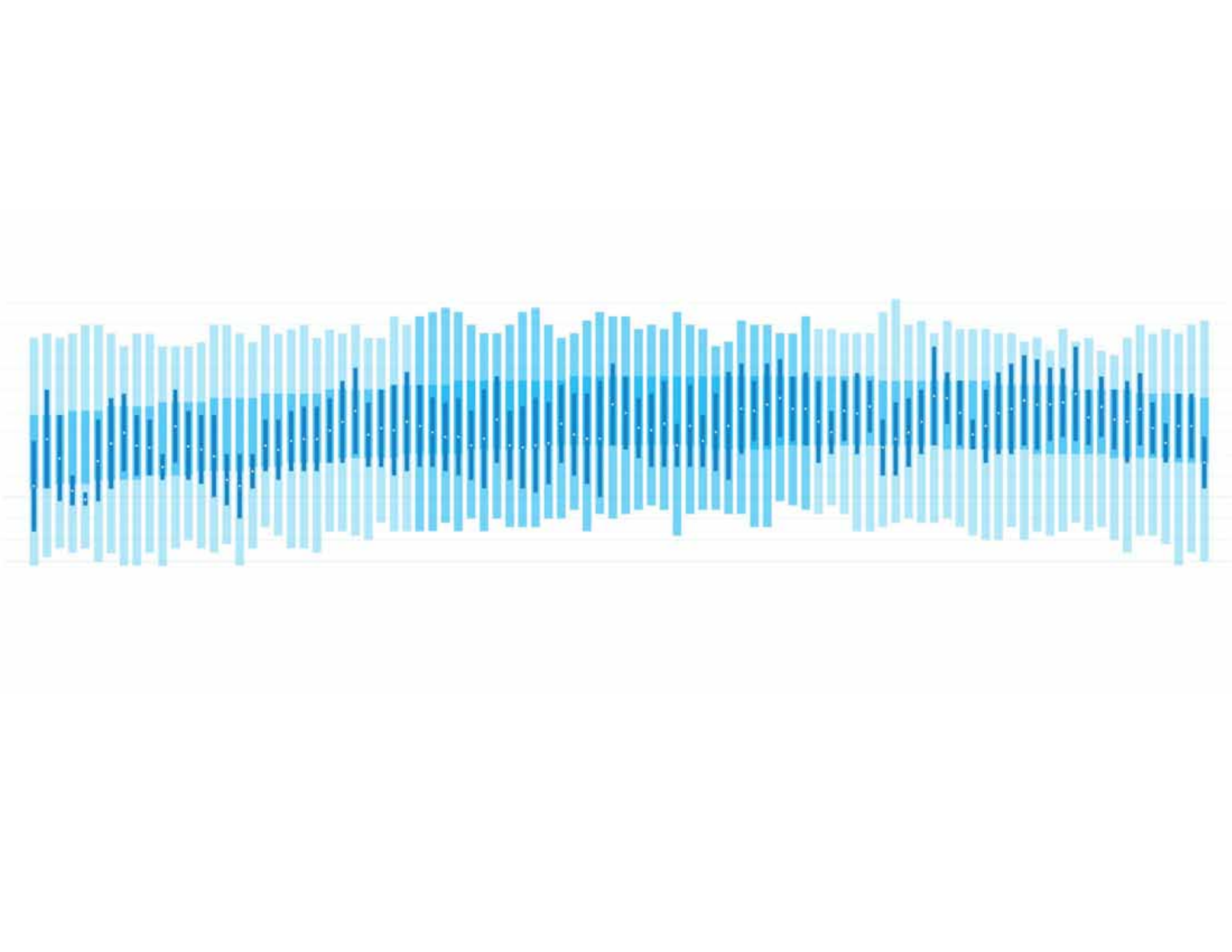
CARBON FOOT PRINT.

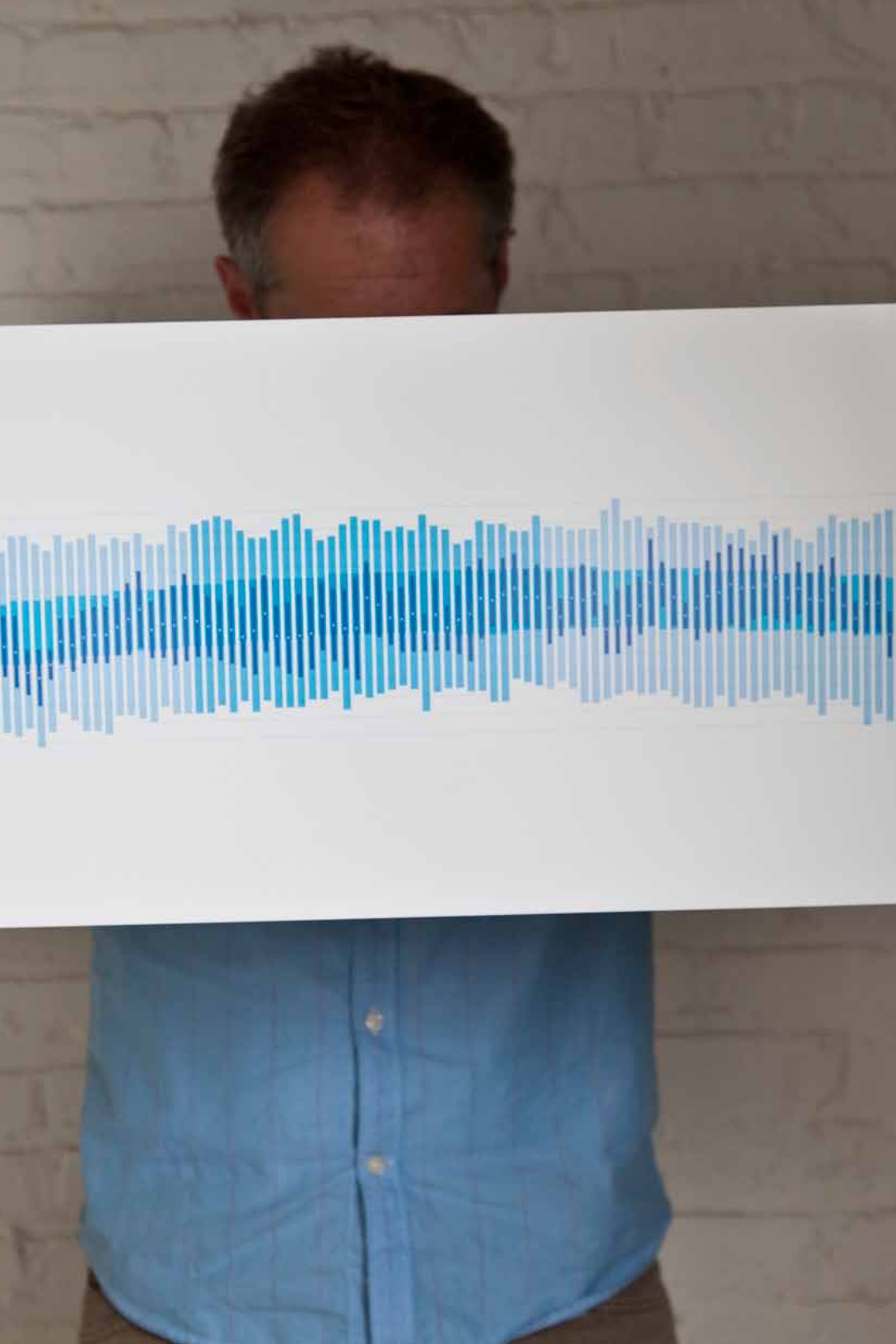
Western Nations
Latin America & Caribbean
Former Communist Countries
Middle East
East Asia
South Asia
Sub-Saharan Africa











- Actual (and average)
- Normal
- Record

This visualization maps the daily high and low for July, and August, against the normal and record for each day. Temperature data was recorded by Service for Philadelphia, PA Latitude: 39 52 www.weather.gov/

Jun 2009						Jul 2009	
Day	MaxT	MinT	Records	Norms		Day	M
1	73	52	97	44	77	60	1
2	85	62	98	46	77	60	2
3	79	59	97	48	77	61	3
4	65	57	98	47	78	61	4
5	61	57	100	48	78	61	5
6	78	59	100	45	78	62	6
7	83	62	98	47	79	62	7
8	84	66	95	44	79	62	8
9	79	65	98	44	79	62	9
10	78	65	98	47	79	63	10
11	70	64	95	44	80	63	11
12	85	68	95	48	80	63	12
13	80	64	95	50	80	63	13
14	79	63	96	48	80	64	14
15	79	60	100	47	81	64	15

THE GREAT NORTH EAST

Stretching from Washington to Boston, the Northeast Corridor is home to 1 in 5 US Residents, and constitutes 85% of daily commuter rail traffic. Each year, 50 million travelers use the Northeast Corridor's complex rail network to travel within the region, and by 2035, ridership is expected to increase by 40%. **The high concentration of rail in the Northeast US makes living car-free a feasible reality.**

This map serves to identify the major commuter and light rail networks serving each city, as well as their connections to major airports, local rapid transit, and adjacent urban rail networks.

STATISTICS

16
Operating Services

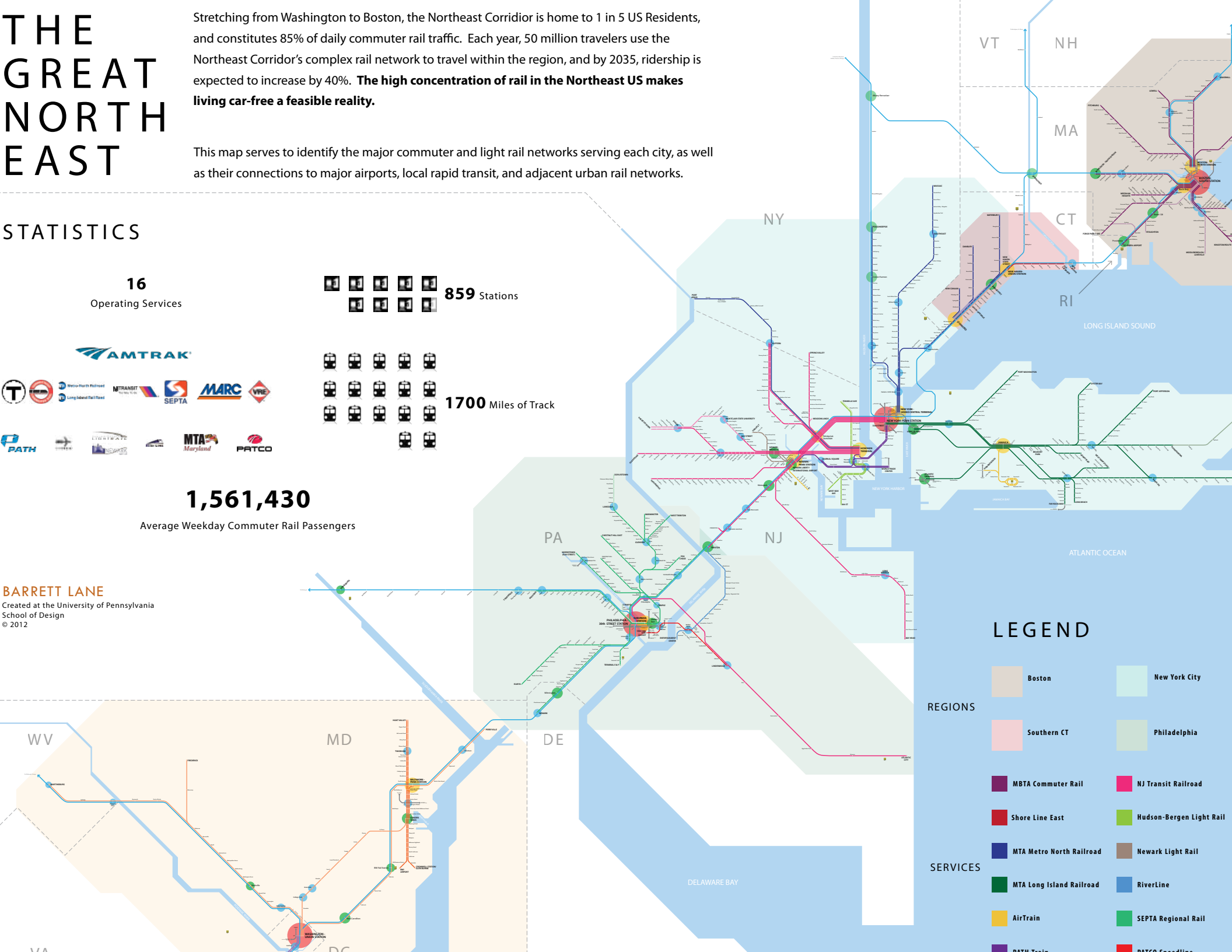


859 Stations

1700 Miles of Track

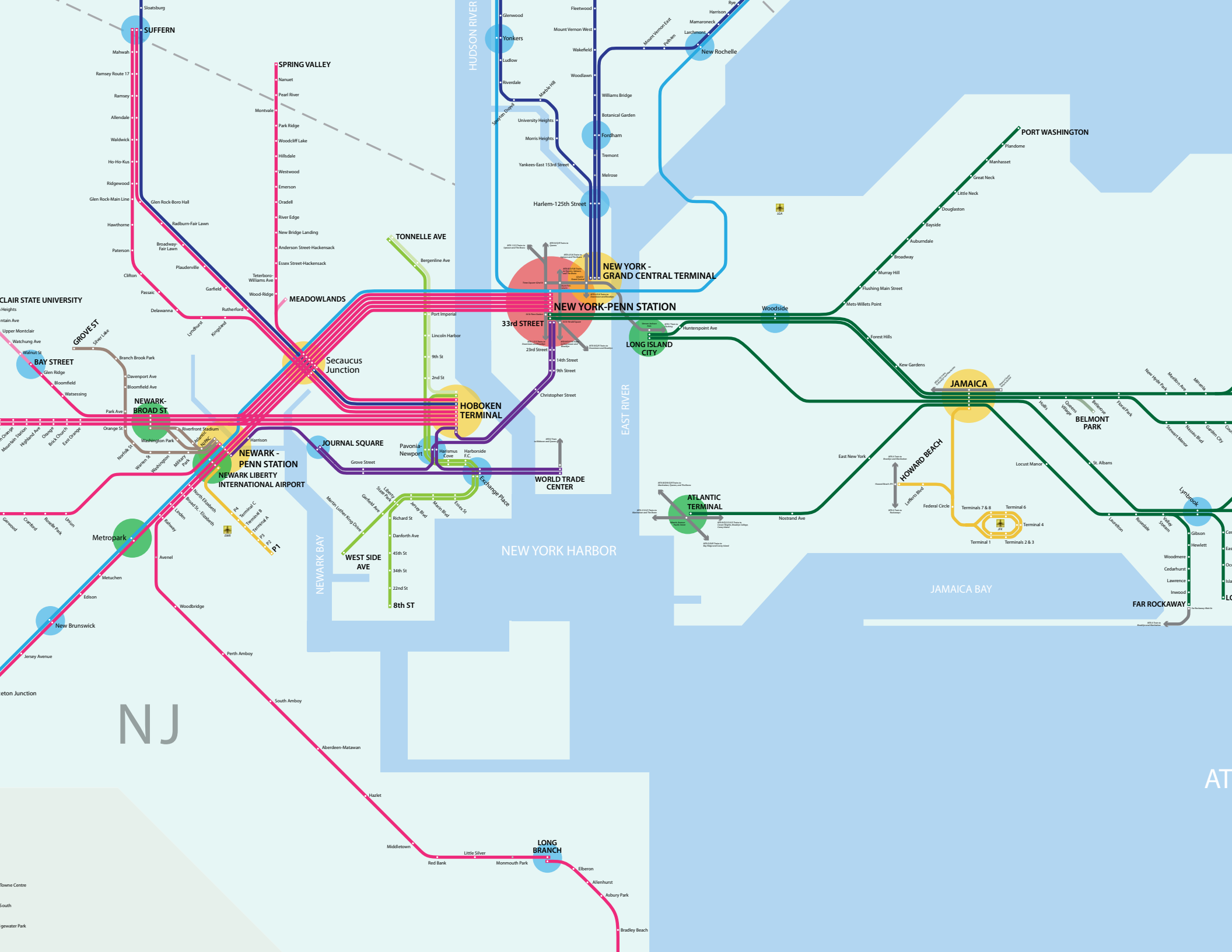
1,561,430
Average Weekday Commuter Rail Passengers

BARRETT LANE
Created at the University of Pennsylvania
School of Design
© 2012



LEGEND

Boston	New York City
Southern CT	Philadelphia
SERVICES	
MBTA Commuter Rail	NJ Transit Railroad
Shore Line East	Hudson-Bergen Light Rail
MTA Metro North Railroad	Newark Light Rail
MTA Long Island Railroad	RiverLine
AirTrain	SEPTA Regional Rail
PATH Train	PATCO Speedline



SUFFERN

SPRING VALLEY

MEADOWLANDS

TONNELLE AVE

NEW YORK - GRAND CENTRAL TERMINAL

NEW YORK-PENN STATION

LONG ISLAND CITY

JAMAICA

BELMONT PARK

HOWARD BEACH

ATLANTIC TERMINAL

HOBOKEN TERMINAL

JOURNAL SQUARE

NEWARK - PENN STATION

NEWARK LIBERTY INTERNATIONAL AIRPORT

WORLD TRADE CENTER

WEST SIDE AVE

NEW YORK HARBOR

JAMAICA BAY

FAR ROCKAWAY

LONG BRANCH

NJ

AT

PATTERNS OF A PENN UNDERGRADUATE: relationships between grades and course attributes

BY VICTORIA SCHWANDA



COURSE SC

LEGENDS

COURSE SCHEDULE

START TIME

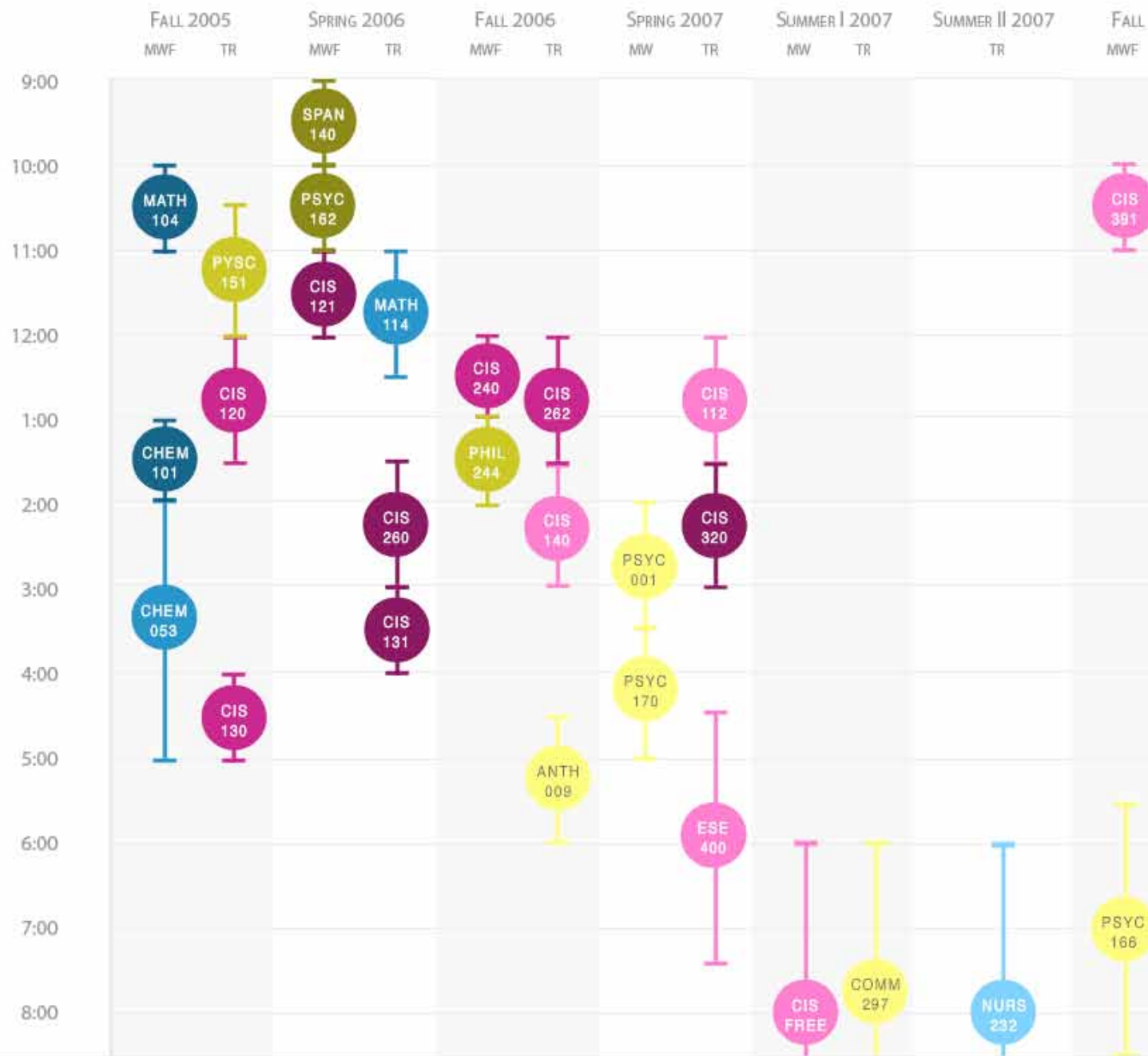
END TIME

COURSE CODE

COLOR DEPICTS COURSE SUBJECT & GRADE

COURSE SUBJECT & GRADE

A	B	C
ENGINEERING		
MATH/NATURAL SCIENCE		



PATTERNS OF A PENN UNDERGRADUATE: relationships between grades and course attributes

BY VICTORIA SCHWANDA



COURSE SC

LEGENDS

PROGRAM REQUIREMENTS

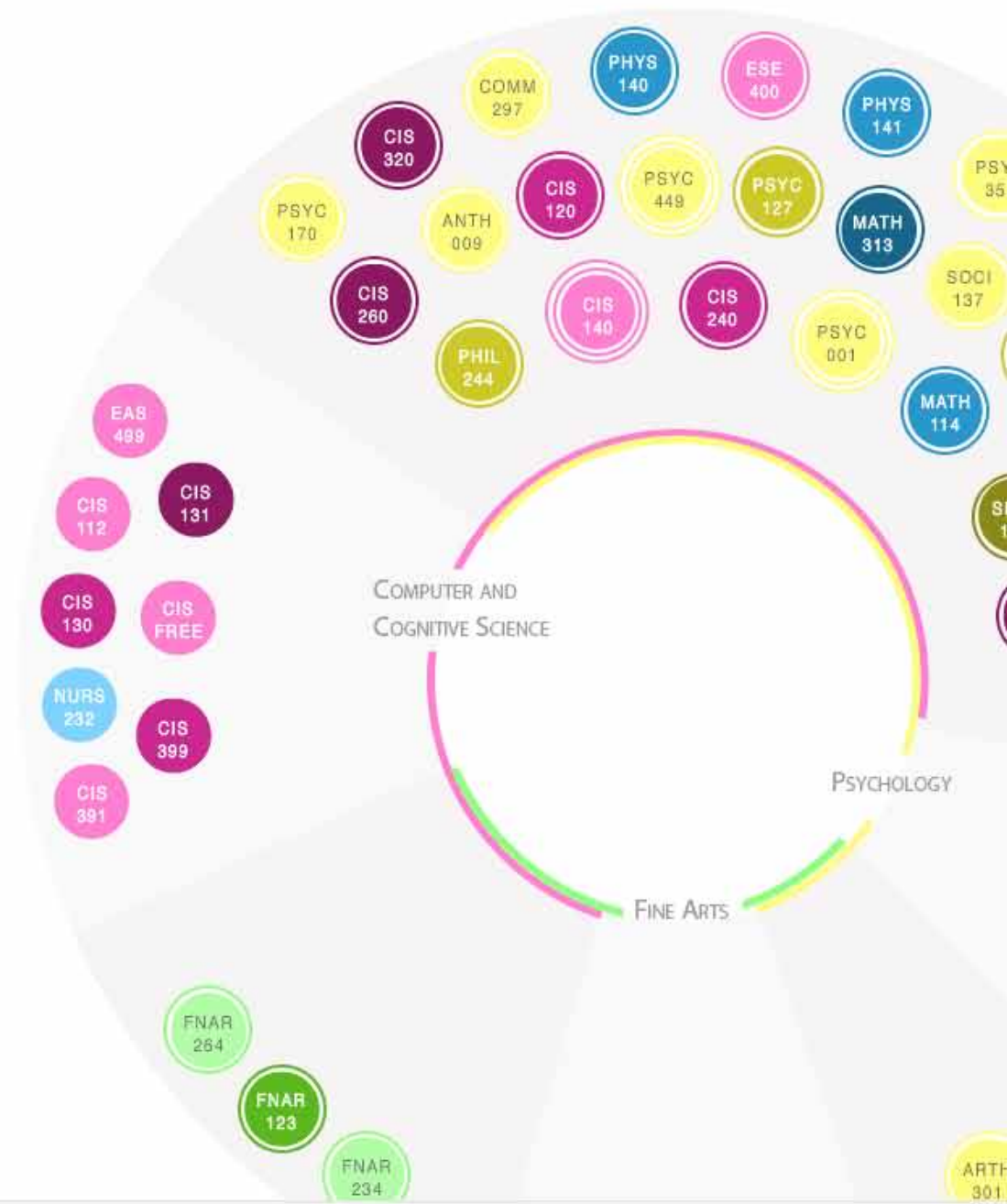
OF RINGS = # OF ADDITIONAL REQUIREMENTS SATISFIED
(3 REQUIREMENTS TOTAL IN EXAMPLE BELOW)



COLOR DEPICTS COURSE SUBJECT & GRADE

COURSE SUBJECT & GRADE

A	B	C
ENGINEERING		
MATH/NATURAL SCIENCE		



PATTERNS OF A PENN UNDERGRADUATE: relationships between grades and course attributes

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COURSE S...



40TH & CHESTNUT

LEGENDS

COURSE LOCATION



COLOR DEPICTS COURSE
SUBJECT & GRADE

COURSE SUBJECT & GRADE

A B C

ENGINEERING

MATH/NATURAL SCIENCE



40TH & WOODLAND

SOUTH

