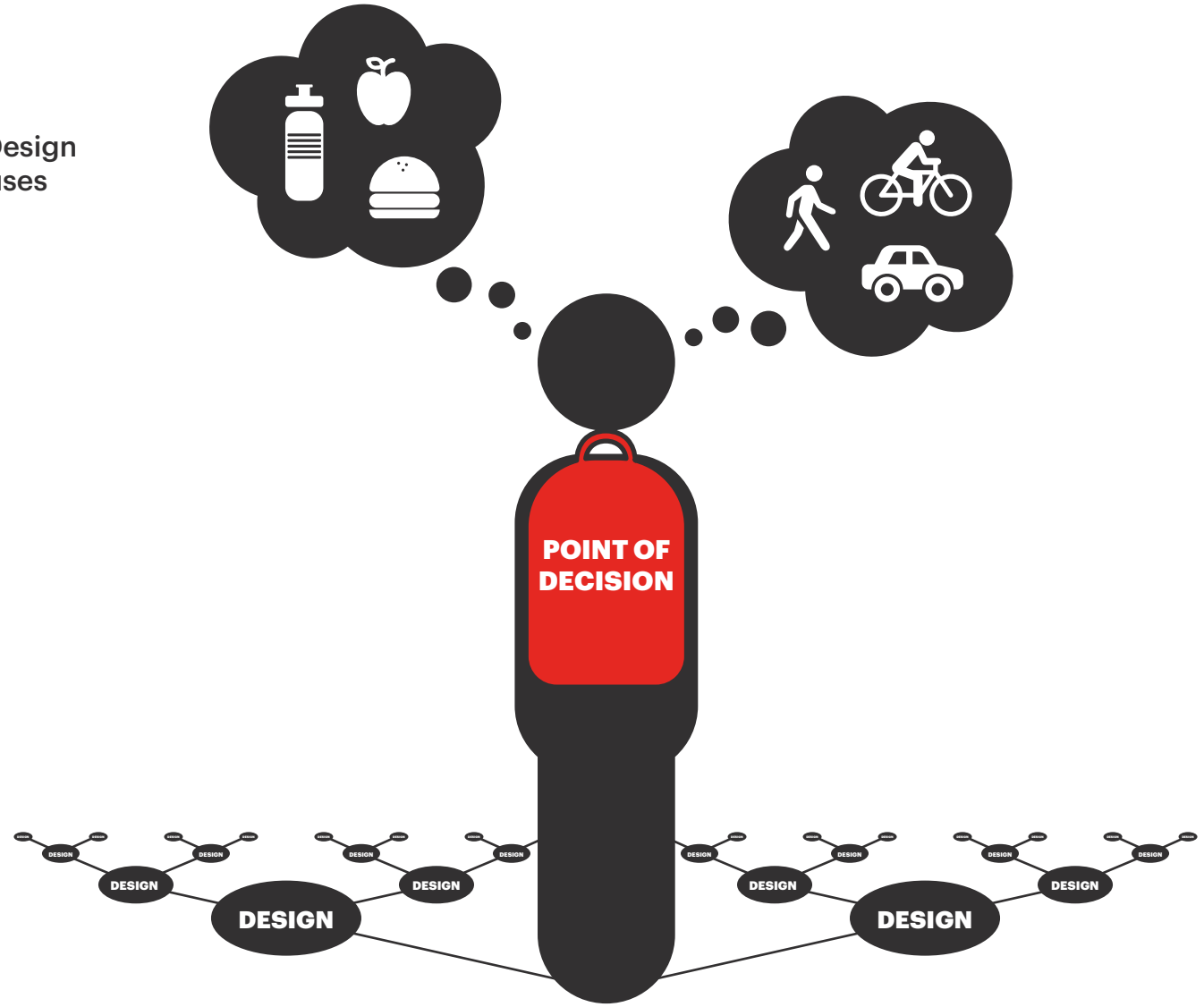
VISUAL DESIGN GUIDE

Point of Decision Design
for College Campuses



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Planning4Health Solutions

ACKOWLEDGMENTS

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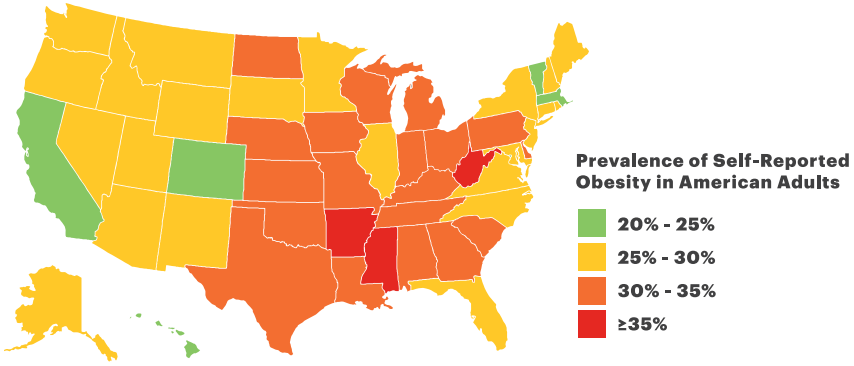
McCARTHY

PART I WHY IT MATTERS

OBESITY IN COLLEGE
OPPORTUNITY: DESIGNING A HEALTHY CONTEXT
EXISTING DESIGN STRATEGIES
CHOICE CONUNDRUM
STUDENT PERSONAS
DECISIONS ON CAMPUS
INTRODUCING POINT OF DECISION DESIGN
INTRODUCING THE DESIGN CONTINUUM

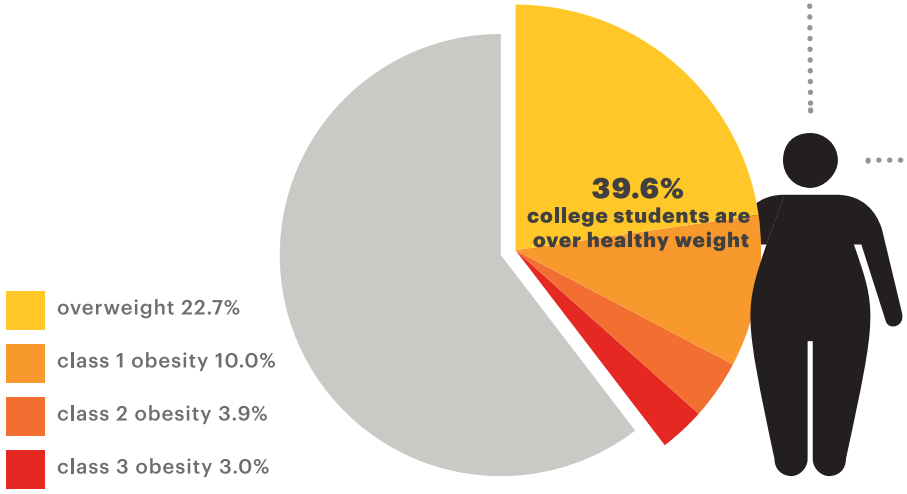
CHALLENGE OBESITY IN COLLEGE



Adapted from CDC "Obesity prevalence Map," 2014 ©CADRE2016

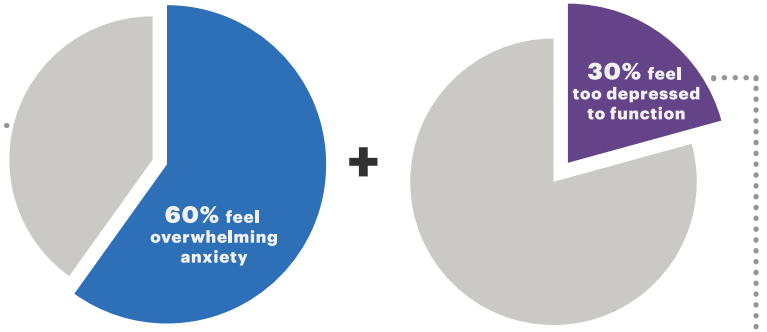
OBESITY IN **AMERICA**

OBESITY IN **COLLEGE**

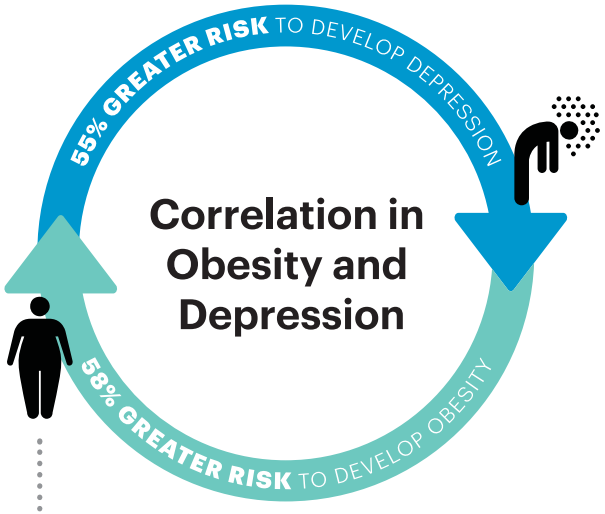


Adapted from ACHA 2016 ©CADRE2016

HOW DOES OBESITY IMPACT THE **MENTAL HEALTH** OF COLLEGE STUDENTS?

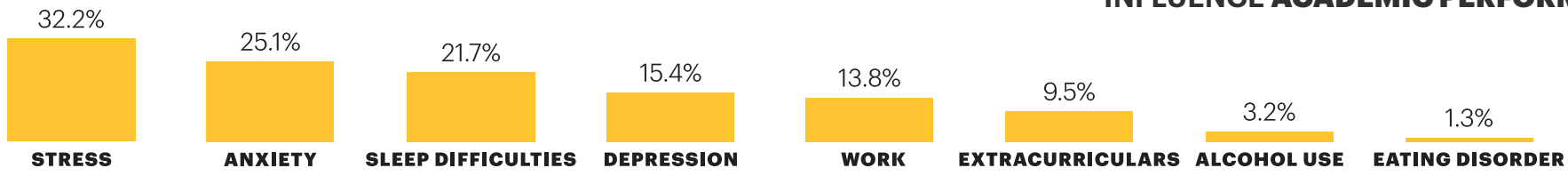


Adapted from ACHA 2016 ©CADRE2016



Adapted from Luppino et. al 2010 ©CADRE2016

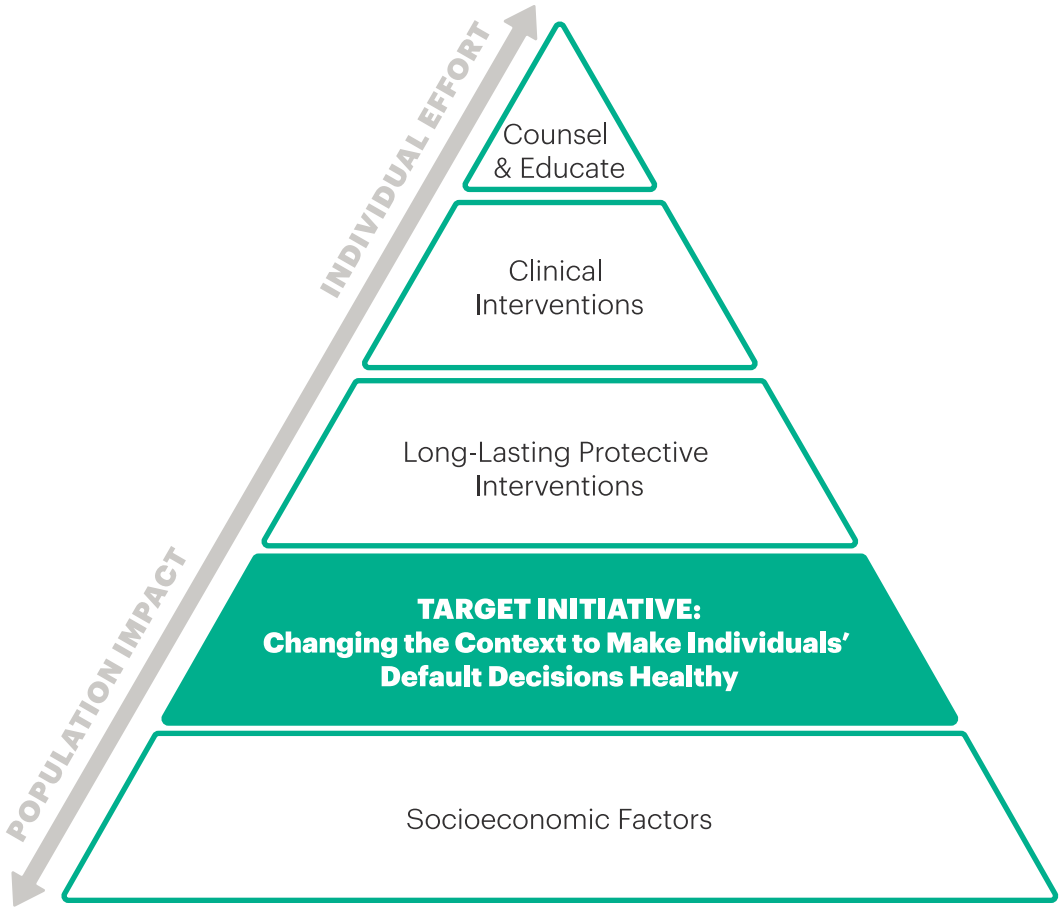
HOW MUCH DO MENTAL HEALTH FACTORS INFLUENCE **ACADEMIC PERFORMANCE?**



Adapted from NCHA-II 2015 ©CADRE2016

OPPORTUNITY DESIGNING A HEALTHY CONTEXT

The Health Impact Pyramid shows there are five ways to impact health on an indirectly related scale of individual effort and population impact. We target the fourth tier, "Changing the Context to Make Individuals' Default Decisions Healthy," by changing the context with design.



Adapted from "Health Impact Pyramid," Frieden 2010

EXISTING DESIGN STRATEGIES

TRANSPORTATION INFRASTRUCTURE

Adequate Sidewalk Width

- Adequate width allows for pairs to walk side-by-side, including wheelchairs
- Walking and biking are the most common forms of physical activity

Cervero, R, Kockelman, K (2004). The relationship between non-motorized mode choice and the local physical environment. Transportation Research: Part D, 9, 151-173.

Bike lanes, Bike Share/Parking Facilities

- Walking and biking are the most common forms of physical activity

Fraser, S & Lock, K. (2011). Cycling for transport and public health: a systematic review of the effect of the environment for cycling. European Journal of Public Health, 21, 738-43.
Pucher, J, Dill, J, & Handy, S. (2010). Infrastructure, programs, and policies to increase bicycling: an international review. Preventive Medicine, 50, S106-S125.

Transit Stops/Shelters

- People who take transit regularly get the recommended amount of physical activity through walking
- Associated with impacting obesity, supporting wellbeing and medical costs.

Edwards, R (2008). Public transit, obesity, and medical costs: assessing the magnitudes. Preventive Medicine, 46, 14-21.

Predictable Paths of Travel

- Well-connected streets determine how people move; connectivity is predictor of walking as a mode of transportation

Sun, G, Oreskovic, N & Lin, H (2014). How do changes to the built environment influence walking behaviors? A longitudinal study within a university campus in Hong Kong. International Journal of Health Geographics, 13, 28

Attractive and Visible Stair Placement

- More physical activity is associated with increased stair use instead of elevator use
- 25 feet of an entrance and before any elevators
- Artwork, music and color more aesthetically attractive

Nicoll, G (2007). Spatial measures associated with stair sue. Science of Health Promotion, 21, 345-52.
Kerr, N, Yore, M, Ham, S, & Dietz, W (2004). Increasing stair use in a worksite through environmental changes. American Journal of Health Promotion, 18, 312-15.
Boutelle, K, Jeffrey, R, Murrary, D & Schmitz, M (2001). Using signs, artwork, and music to promote stair use in a public building. American Journal of Public Health, 91, 2004-6.

HEALTHY FOOD AVAILABILITY

Farmer's Markets

- Provides direct access to healthy foods/fruits and vegetables where demand and access for healthy foods are not met.
- Offers social connectivity and sense of community

Project For Public Spaces. Measuring the impact of public markets and farmers markets on local economies. 2009; http:// www.pps.org/articles/measuring-the-impact-of-public-markets-and-farmers-markets-on-local-economies/.

Community Gardens

- Provides access to fresh produce where other healthy food outlets are not as accessible
- Provides sense of community

Twiss, J, Dickinson, J, Duma, S, Kleinman, T, Paulsen, H, & Rilveria, L (2003). Community gardens: lessons learned from California healthy cities and communities. American Journal of Public Health, 93, 1435-8.

Grocery Stores

- Lower obesity rates in neighborhoods having a supermarket/grocery store

Morland, K., Roux, A. V. D., & Wing, S. (2006). Supermarkets, other food stores, and obesity: the atherosclerosis risk in communities study. American journal of preventive medicine, 30(4), 333-339.

EXISTING DESIGN STRATEGIES

ACCESS TO GOODS AND SERVICES

Mixed Density (residential), Mixed Land Uses and Infill

- Having a greater mix of land uses are attributed to lower obesity
- Residents are more likely to walk with multiple and useful destinations in the area.

Distance to Parks, Healthcare Facilities, Community Services, Multi-use Courts

- Distance around ¼ or ½ mile makes walking and cycling viable
- Courts (i.e. basketball) are opportunities for active recreation
- Increase Social Cohesion

McCormack, G, Giles-Corti, B, Bulsara, M (2008). The relationship between destination proximity, destination mix and physical activity behaviors. Preventive Medicine, 46, 33-40.
Kaczynski, A, Potwarka, L, & Saalens, B. (2008). Association of park size, distance, and features with physical activity in neighborhood parks. American Journal of Public Health, 98, 1451-1456.

PRODUCT PLACEMENT

Healthy Food Offerings and Placement

- Healthy food offerings at dining locations increase the consumption of healthy foods
- Healthy "grab 'n go", vending machines and cafeteria layout
- Make healthy food offerings more visible and accessible increases healthy eating habits

Levy, D, Riis, J, Sonnenberg, L, Barraclough, S & Thorndike, A (2012). American Journal of Preventive Medicine, 43, 240-8.

SAFETY

Crime Prevention through Environmental Design (CPTED) Techniques

- Perceived or real safety provides level of comfort for outdoor activity

Crowe TD. Crime prevention through environmental design: applications of architectural design and space management concepts. Boston: Butterworth-Heinemann; 2000

STREETSCAPE DESIGN AND OPEN SPACE

Street Trees (between road and sidewalk)

- Trees provide shade and safety and protect from sunlight and heat

Arnold, H. (1993). Trees in Urban Design. New York: Van Nostrand Reinhold.

Pedestrian Scale Lighting

- Lighting provides safety at night

Painter, K. (1996). The influence of street lighting improvements on crime, fear, and pedestrian street use, after dark. Landscape and Urban Planning, 35, 193-201.

Street Furnishings

- Benches provide rest during activity
- Signage provides direction

Lockett, D, Willis, A, Edwards, N (2005). Through seniors' eyes: an exploratory qualitative study to identify environmental barriers to facilitators of walking. Canadian of Journal of Nursing Research, 37, 48-65.
Project for Public Spaces: How to Turn a Place Around. New York: Project for Public Spaces, Inc. 2000

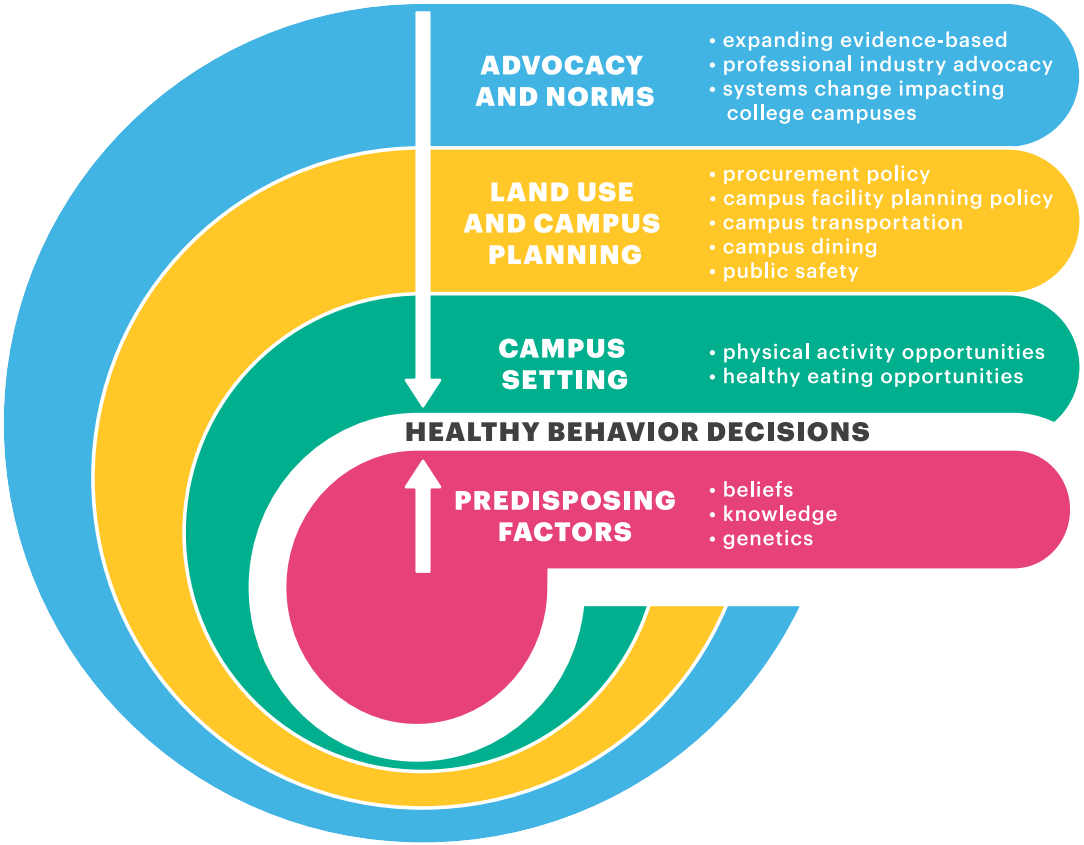
Green Infrastructure, Gardens, Multi-use Fields, Shelters (grills, picnic area), Public Plazas

- Multi-use fields allow for unstructured physical activity
- Nature contact is a predictor of physical activity
- Increase social cohesion
- Plazas provide area to promote walking and social interactions

Caloguiri, G & Chroni, S (2014). The impact of the natural environment on the promotion of active living: an integrative systematic review. BMC Public Health, 14, 873
New York City Department of Transportation. NYC Plaza Program. http://www.nyc.gov/html/dot/html/sidewalks/Publicplaza.shtml.

THE CHOICE CONUNDRUM

The adapted Socio-Ecological Model for Healthy Campus Design below shows where the design opportunity for healthy behavior decisions is located among various campus influences. How can design alter the campus setting to positively affect healthy decisions?



Adapted from "Socio-Ecological Model for Healthy Campus Design," McLeroy et al. 1988 ©CADRE2016

WHERE AND HOW DO WE MAKE DECISIONS?

There are too many choices to accurately make the healthy decision every time. Design solutions focused at critical points of decision can sway student behaviors towards healthy decisions in order to make the healthy choice the easy choice.

STUDENT PERSONAS

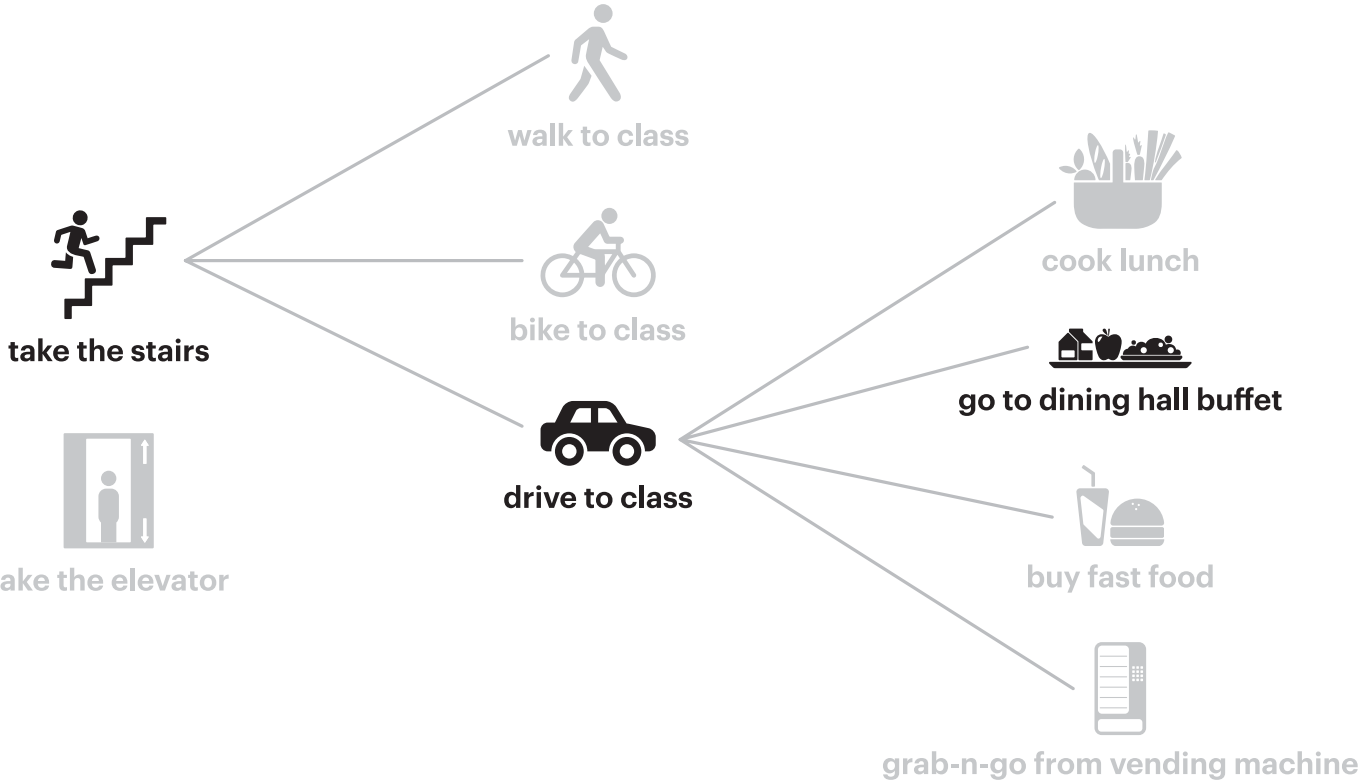
WHO MAKES DECISIONS?

Individuals on a campus bring different personalities, emotions, schedules, majors and more to the campus culture. How can we create a universal design for multiple personas in one campus community?

DECISIONS ON CAMPUS

HOW AND WHERE DO STUDENTS MAKE DECISIONS?

Students are faced with healthy and unhealthy decisions everyday. What are the driving influences at locations where students make decisions? How can we design these drivers to make the healthy choice the easy choice?



INTRODUCING POINT OF DECISION DESIGN

Point-of-Decision Design relates to the use of design features that support and promote a change in behavior, towards making healthy choices, at the point of decision.

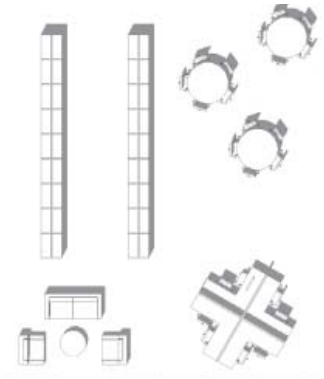
THE DESIGN CONTINUUM

Design can influence behaviors across multiple scales: information, product, interior, architecture and urban realm. Click on each sector below to see a map of design elements on specific scales.

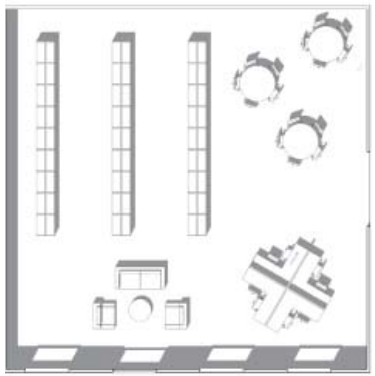
INFORMATION | PRODUCT | INTERIOR | ARCHITECTURE | URBAN REALM

PLACE

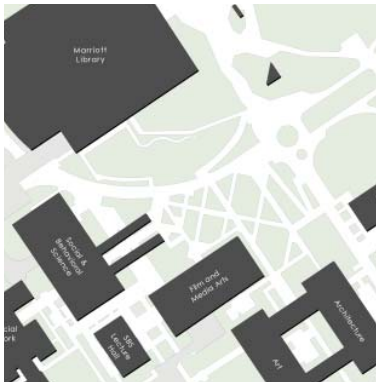
internet, device apps, signage, flyers



furniture, lighting fixtures, wearables



lighting ambience, airflow, color scheme



spatial relationship, constructed features

pathways, building organization, density

PART II WHAT WE CAN DO

4 STEPS TO POINT OF DECISION DESIGN

#1 KNOW YOUR STUDENTS

#2 LOCATE STUDENT POINTS OF DECISION

#3 IDENTIFY INFLUENTIAL FACTORS

#4 DEFINE YOUR DESIGN STRATEGIES

WHAT TO DO FOR YOUR CAMPUS

4 STEPS TO POINT OF DECISION DESIGN ON COLLEGE CAMPUSES

POINT OF DECISION DESIGN

#1 KNOW YOUR STUDENTS

Who is making decisions? Identify user personas and key destination points through campus-wide surveys, interviews and first-hand observations to understand personalities and cultures.

#2 LOCATE STUDENT POINTS OF DECISION

Where are students making decisions? Use your students personas to create journey maps and mark out the most popular and most influential points of decision.

#3 IDENTIFY INFLUENTIAL FACTORS

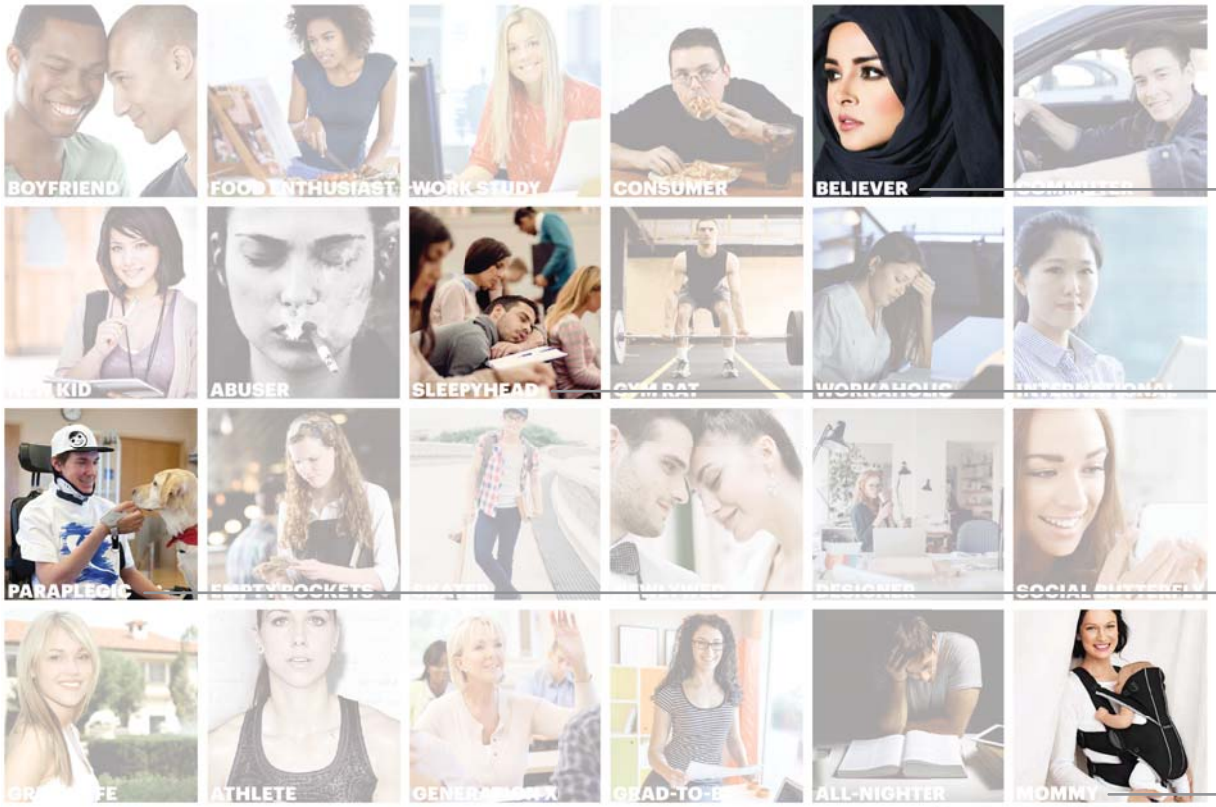
Which factors can influence their decisions? Identify influential factors at each point of decision based on student feedback, and identify which factors fall under campus setting (design) or predisposing factors (control).

#4 DEFINE YOUR DESIGN STRATEGIES

How can we design across scales to prompt a healthy decision? Use the visual design guide and other resources (critical links document) to apply design strategies to campus setting factors at each point of decision.

#1 KNOW YOUR STUDENTS

Understand the various student personliaties and cultures living on your campus. Group similar student personas in order to analyze your student body with just a few personas such as those below.



Sometimes I feel people judge the way I dress for my **religion**, so I take quiet paths, and hang out with my friends in the **courtyards**. I'm a **vegetarian**, so I usually eat at the **dining hall** since there are many good options."

"Most nights I stay up **playing video games**. Sometimes I skip class and stay home since my friends and I take turns and share notes. I keep **food from the campus convenience store in my room** for grab-and-go food."

I take different routes than most of the people who walk because **my chair takes minimal terrain**. I avoid the food locations that get too crowded. I like to go to the **dining halls** best because there is a variety of food and tables."

Jack makes hours at home a priority, so I **exercise at home with online videos** and I learned to **cook**. With him around, I **only go to campus when I have class** because I don't like to leave him in the **campus day care** too long."

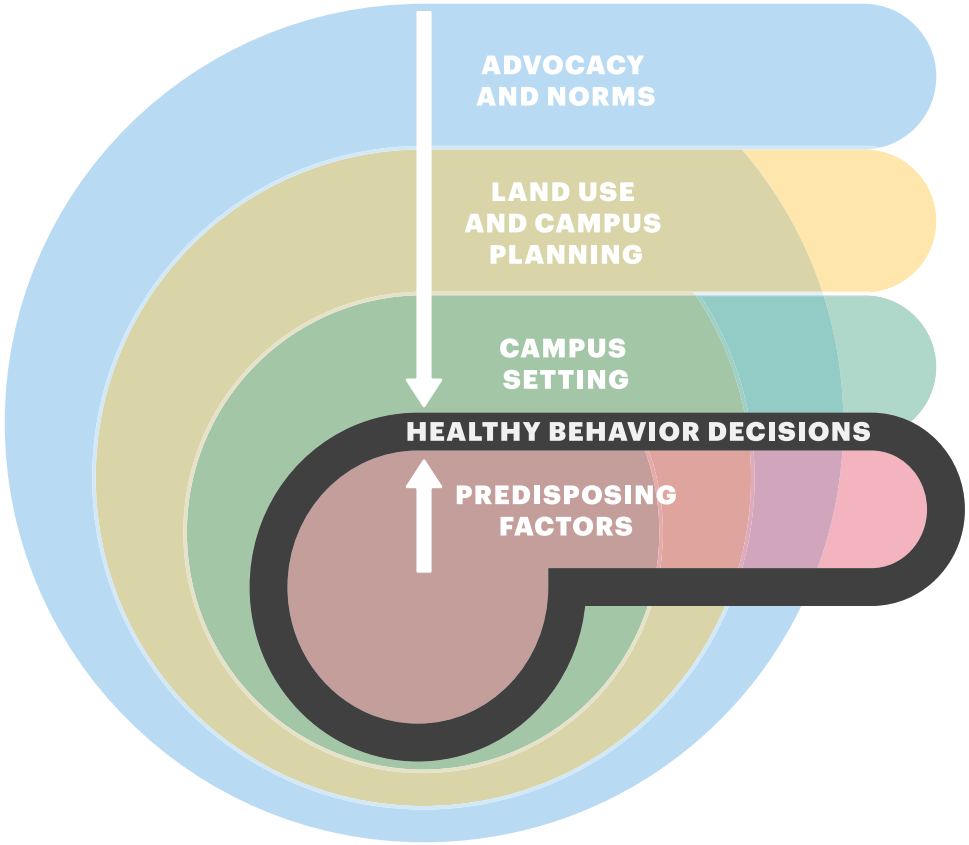
#2 LOCATE STUDENT POINTS OF DECISION

Diverse students face healthy and unhealthy choices everyday. See the below exmples of “day in the life” journeys to identify the most common points of decision on campus.

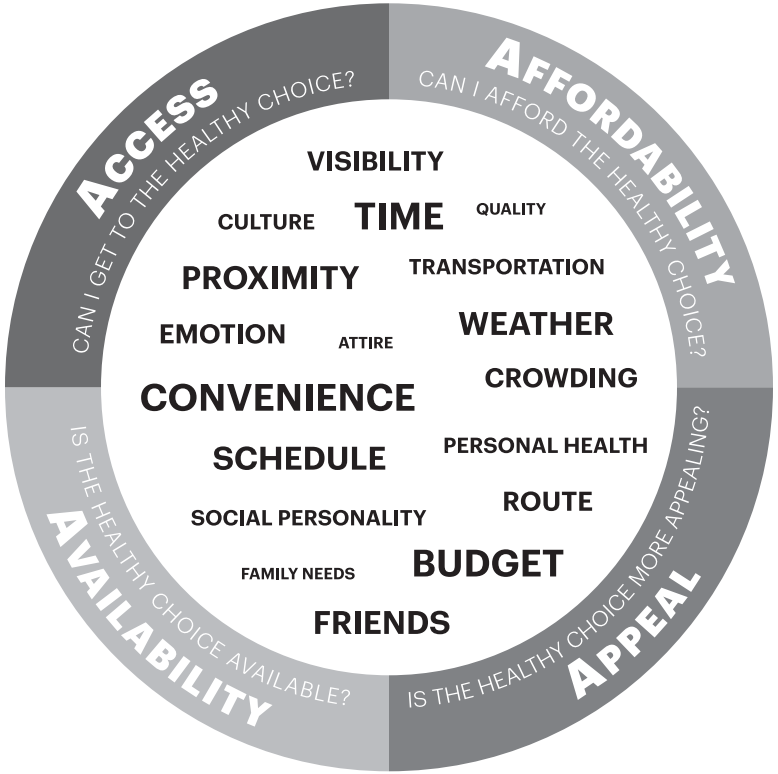
Meal Planning Decisions on Move Decisions on Diet

#3 IDENTIFY INFLUENTIAL FACTORS

The socio-ecological model tells us there are multiple influential factors that impact behavior. The predisposing factors of the socio-ecological model cannot be controlled by design. However there are influential factors which can change day to day based on the 4 As: access, affordability, availability and appeal. For this reason, it is important to engage students and see which factors at points of decision can be influenced by design.



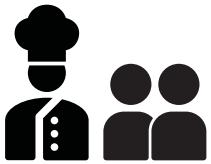
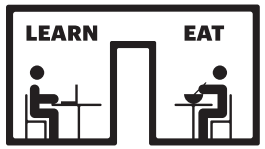
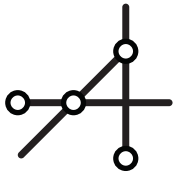
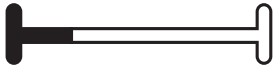
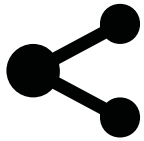
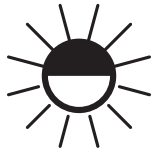
INFLUENTIAL FACTORS



Adapted from "Socio-Ecological Model for Healthy Campus Design," McLeroy et al. 1988 ©CADRE2016

#4 DEFINE YOUR DESIGN STRATEGIES

The design strategies listed below offer ways to create a healthy campus across all scales of design. See green boxes for Diet by Design, pink boxes for Move by Design and gray boxes for strategies in both diet and physical activity.

FARMERS MARKETS 	COMMMUNAL KITCHEN 	CULTURAL FOOD CHOICES 	HYDRATION STATIONS 	FLEX SPACE FOR FOOD VENDORS 
COOKING CLASSES 	PORTION CONTROL 	RECHARGE ZONES 	MIXED USE 	HEALTHY CHOICE MAPS 
CROSSROAD PROMPTS 	1/4 MILE ACCESS TO HEALTHY GOODS 	SOCIAL GATHERING SPACES 	PEDESTRIAN/SOCIAL SPINE 	BIKE PARKING 
SEATING INTEGRATED WITH LANDSCAPE 	RELAXATION SPACES 	STRATEGIES WITH NATURAL LIGHT 	TREE-LINED WALKWAYS 	GREEN ROOFS 

DIET BY DESIGN | MOVE BY DESIGN | NEUTRAL STRATEGY

PART III SUMMARY

14 POINTS OF DECISION ON A COLLEGE CAMPUS

24 DESIGN STRATEGIES

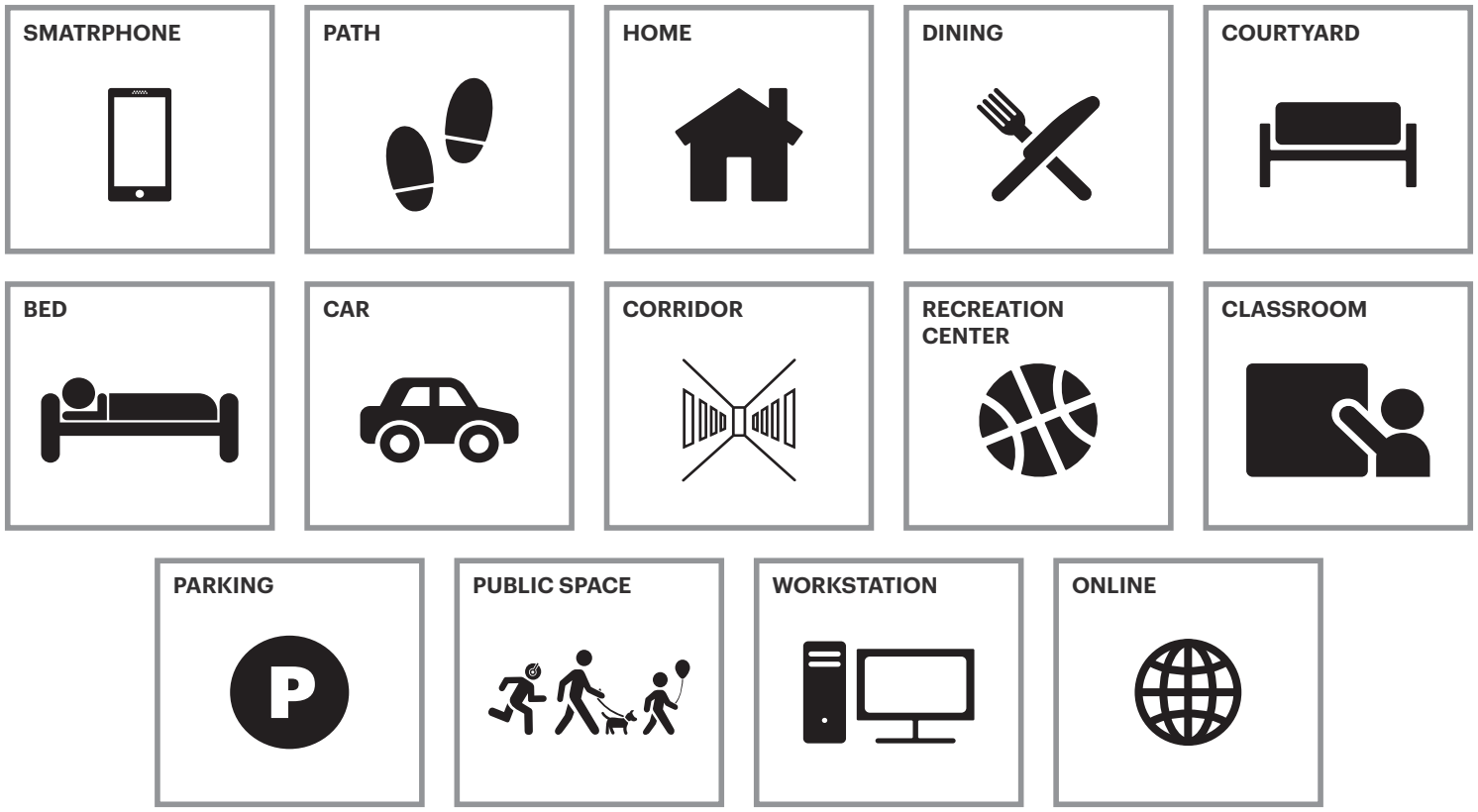
POINT OF DECISION DESIGN [PODD]

SMARTPHONE	CORRIDOR
PATH	RECREATION CENTER
HOME	CLASSROOM
DINING	PARKING
COURTYARD	PUBLIC SPACE
BED	WORKSTATION
CAR	ONLINE

PODD EQUATION

POINTS OF DECISION

See the point of decision below to see applicable design strategies across the design continuum alongside factors and common questions asked at each location.



DESIGN STRATEGIES ALONG THE CONTINUUM

INFORMATION | PRODUCT | INTERIOR | ARCHITECTURE | URBAN REALM

PLACE

HEALTHY CHOICE MAPS WITH GEOTAGS INTERACTIVE APP

CROSSROAD PROMPTS

MAKE IT COOL HEALTHY CHOICES AS THE A TREND

CULTURAL SENSITIVITY HEALTHY GROCERY + FOOD OPTIONS

PORTION CONTROL PRODUCTS DINNERWARE + NUTRITIONAL INFORMATION

HEALTHY FOOD OFFERINGS & PLACEMENT

HYDRATION STATIONS ACCESS TO FILTERED WATER

INCREASED VISIBILITY OF CHOICES

LEARNING KITCHEN SHARED KITCHENS IN HOUSING, COOKING CLASSES

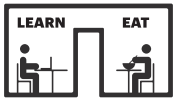
ATTRACTIVE AND VISIBLE STAIR PLACEMENT

NATURAL LIGHT DAYLIGHT WITH INDOOR/OUTDOOR SCHEMES

RECHARGE ZONES MIND, BODY, SPIRIT, TECHNOLOGY

GREEN ROOFS GARDENS AND TERRACES

MIXED USE ACADEMIC, RETAIL, FOOD, HOUSING



TRANSIT STOPS AND SHELTERS

BIKE TRANSIT PARKING, LANES + PATHS, RENTAL

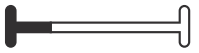
COMMUNITY GARDENS

LIGHTING SAFETY STRATEGIES CRIME PREVENTION AT NIGHT

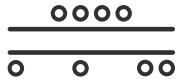
CENTRAL GREEN SPACE AS FLEX SPACE FOR FARMERS MARKETS + FOOD VENDORS

TREE-LINED WALKWAYS STREET TREES

1/4 MILE ACCESS TO HEALTHY GOODS WALKABLE DISTANCE



SOCIAL SPINE VISIBLE GATHERING NICHES NEAR HEALTHY FOOD/ACTIVITY



PEDESTRIAN PATHWAYS INTEGRATED RUNNING LOOP/TRAILS

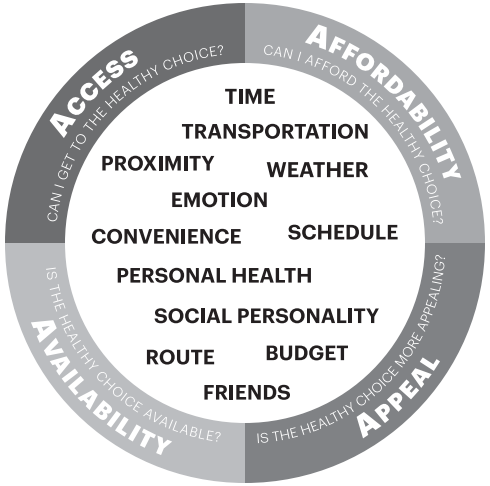
STREET FURNISHINGS SEATING INTEGRATED WITH LANDSCAPE

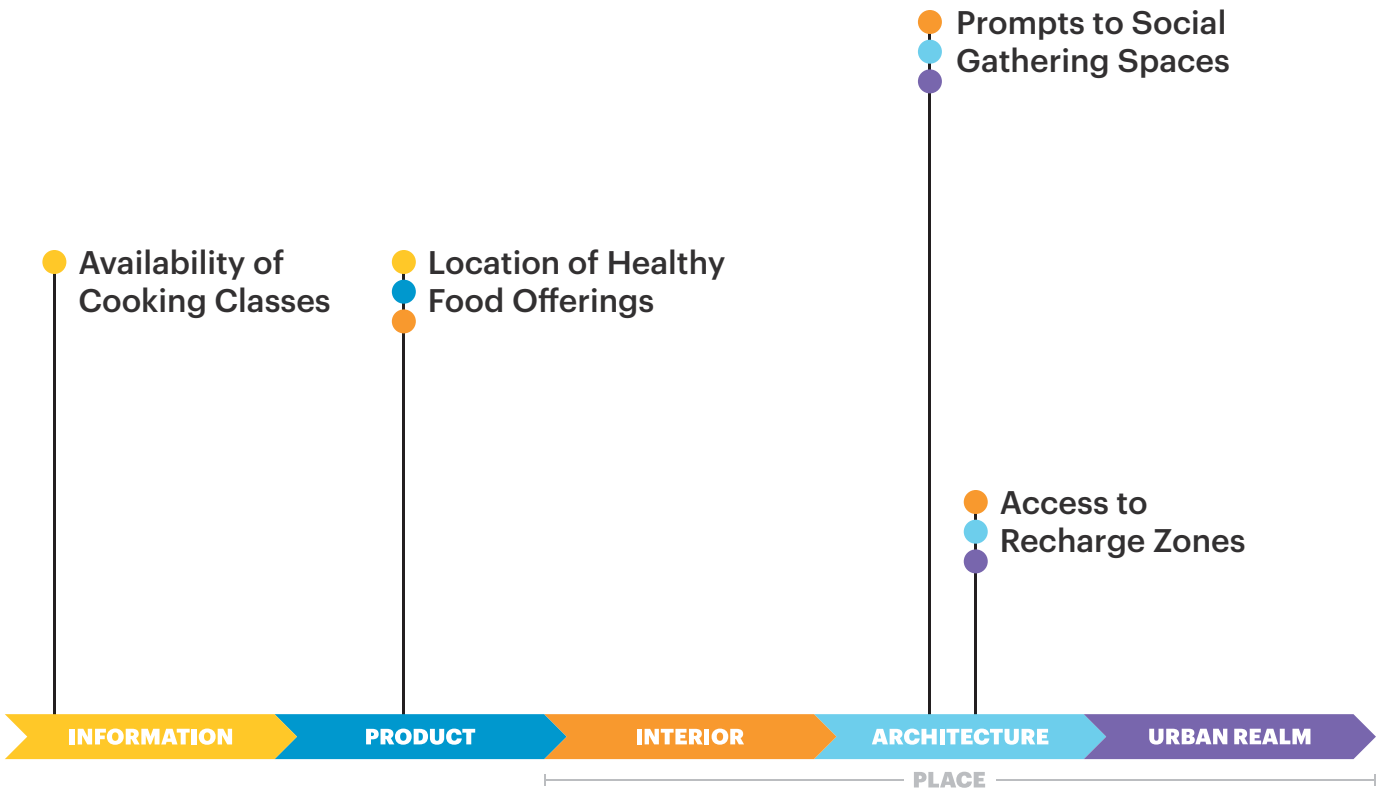
Ideation Session

Literature

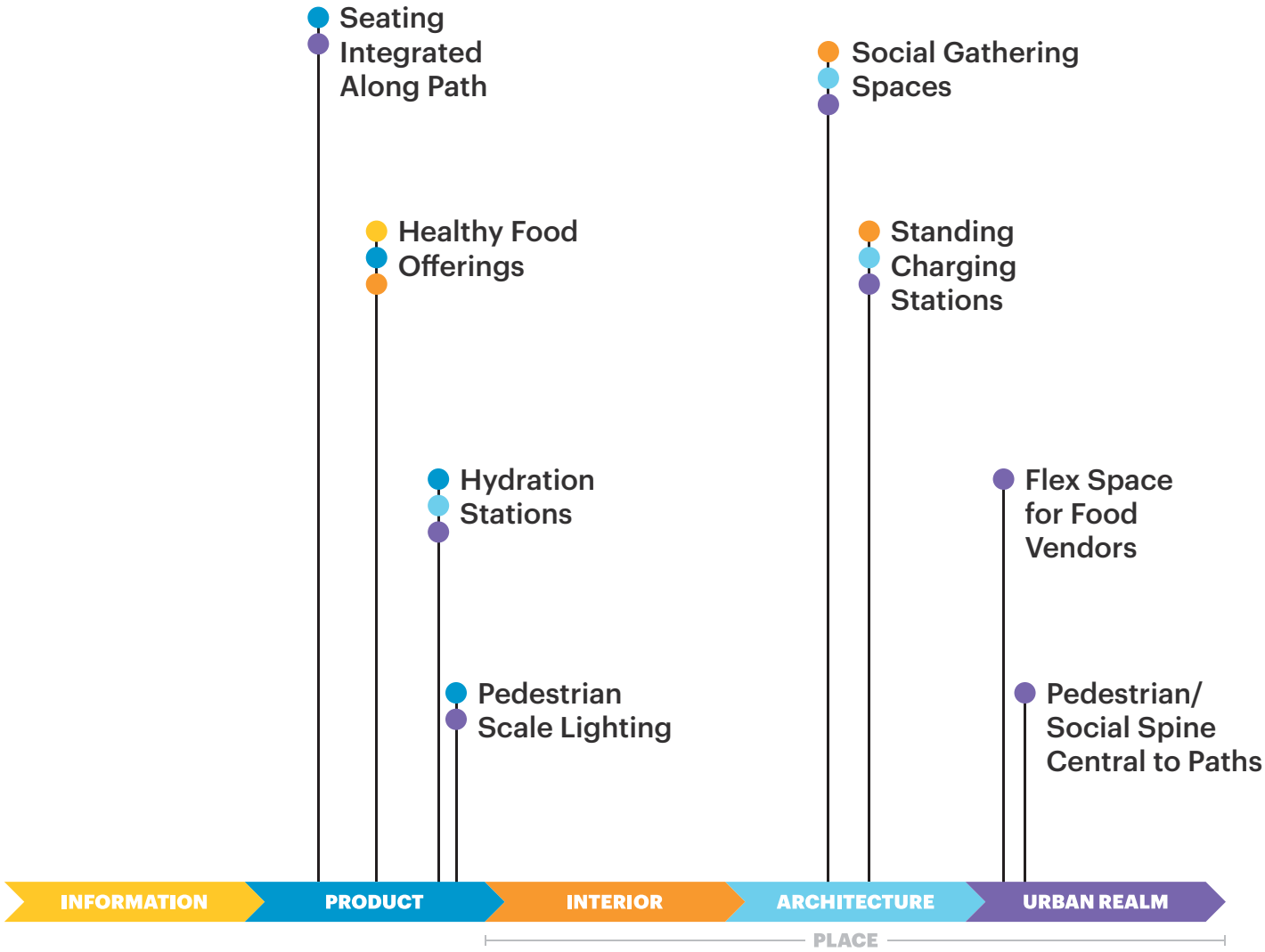
As predicted in our society further embraing technology, most new ideas appeared on the left side of the continuum. Also more diet-based strategies came from the Ideation Session whereas most move-based strategies were from preexisting literature.

POINT OF DECISION DESIGN SMARTPHONE



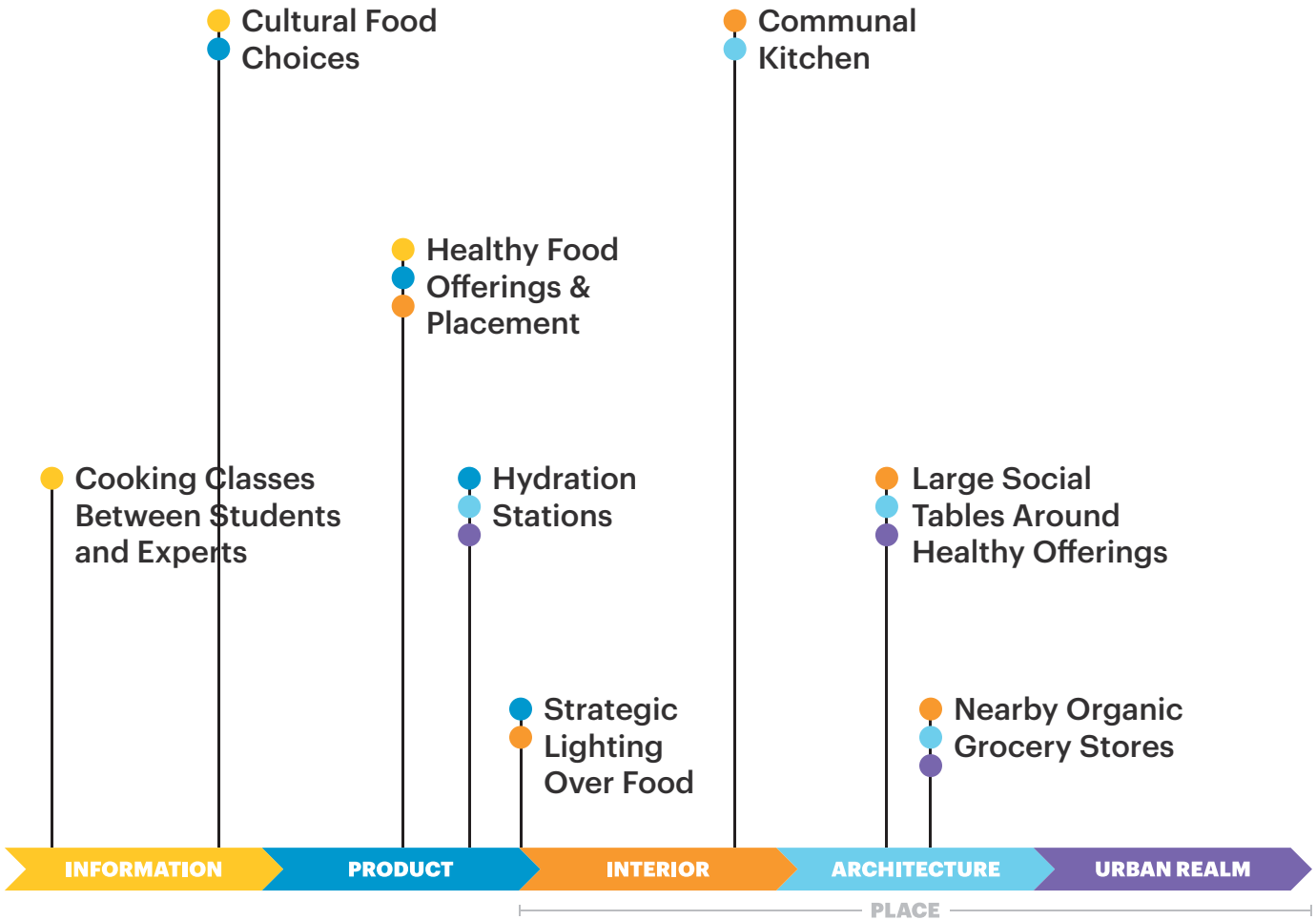


POINT OF DECISION DESIGN PATH

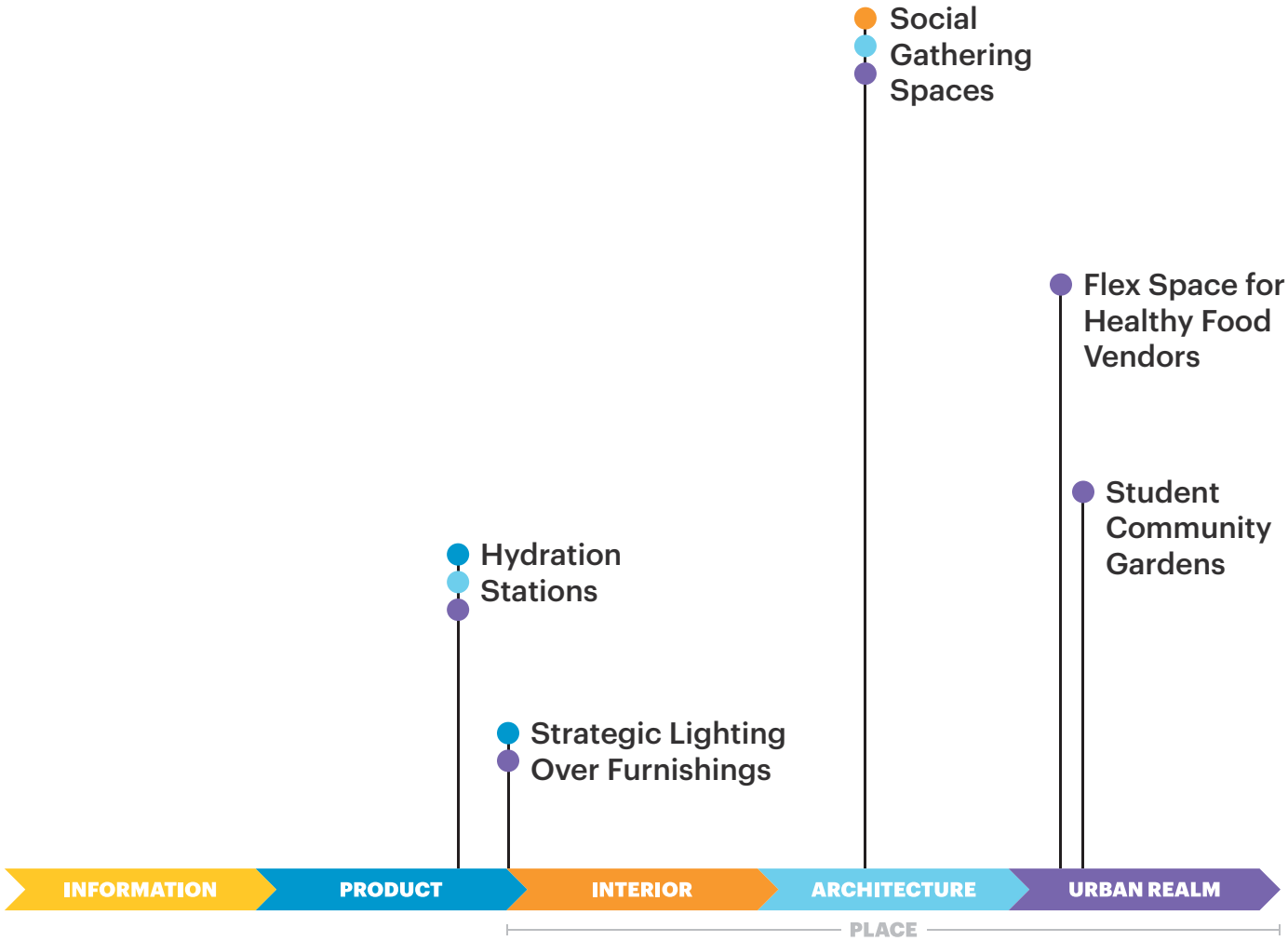


POINT OF DECISION DESIGN HOME

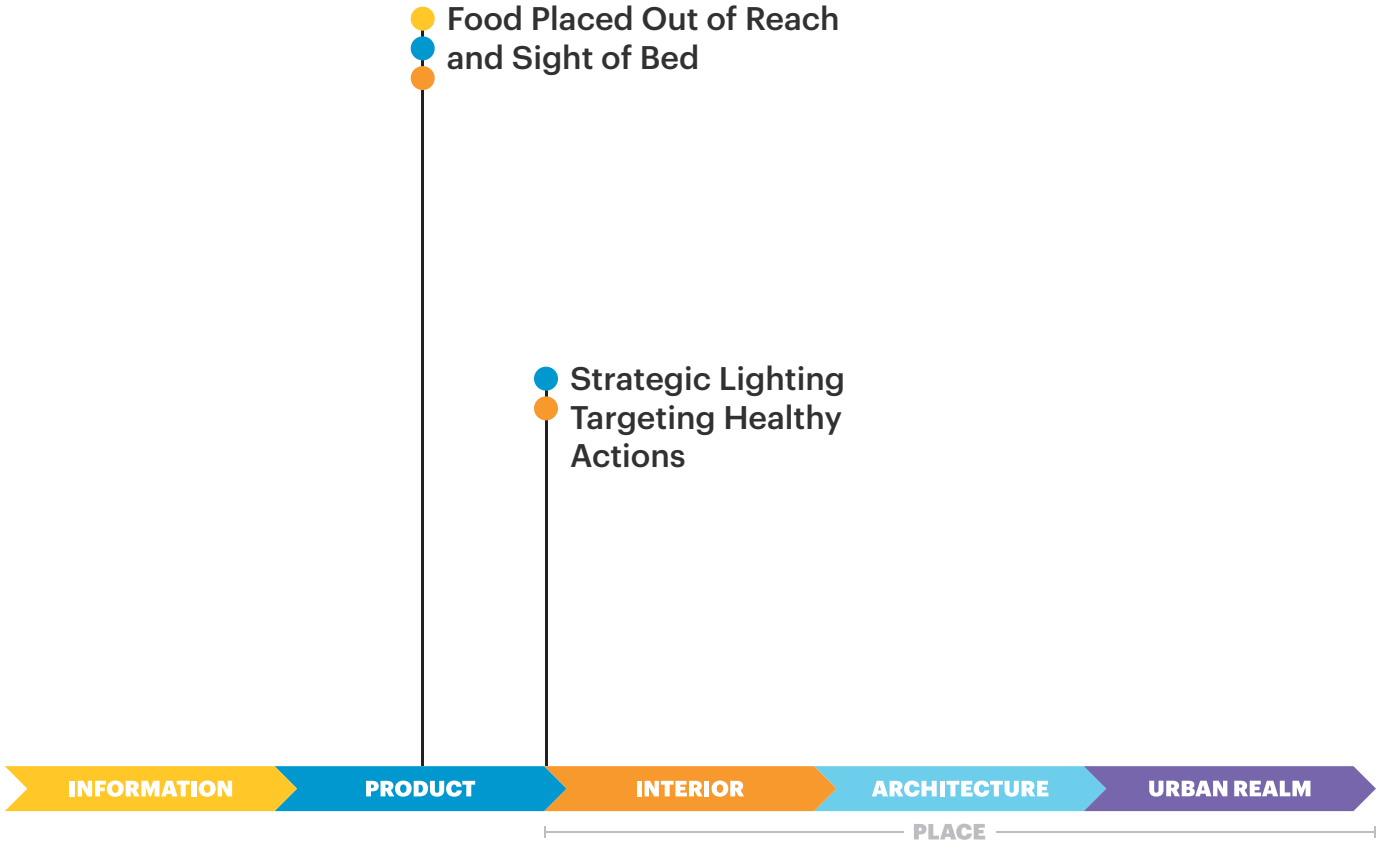
POINT OF DECISION DESIGN DINING



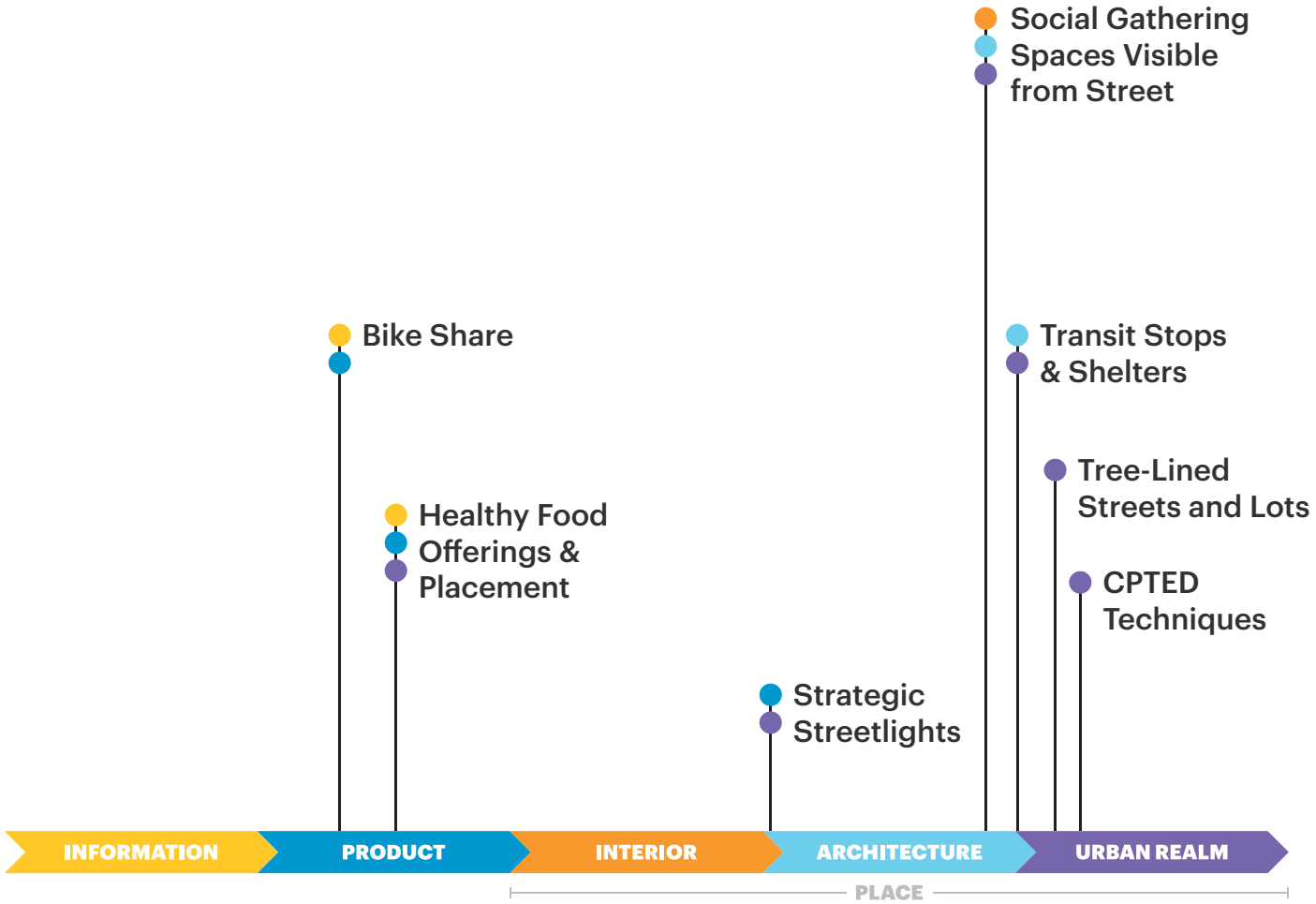
POINT OF DECISION DESIGN COURTYARD



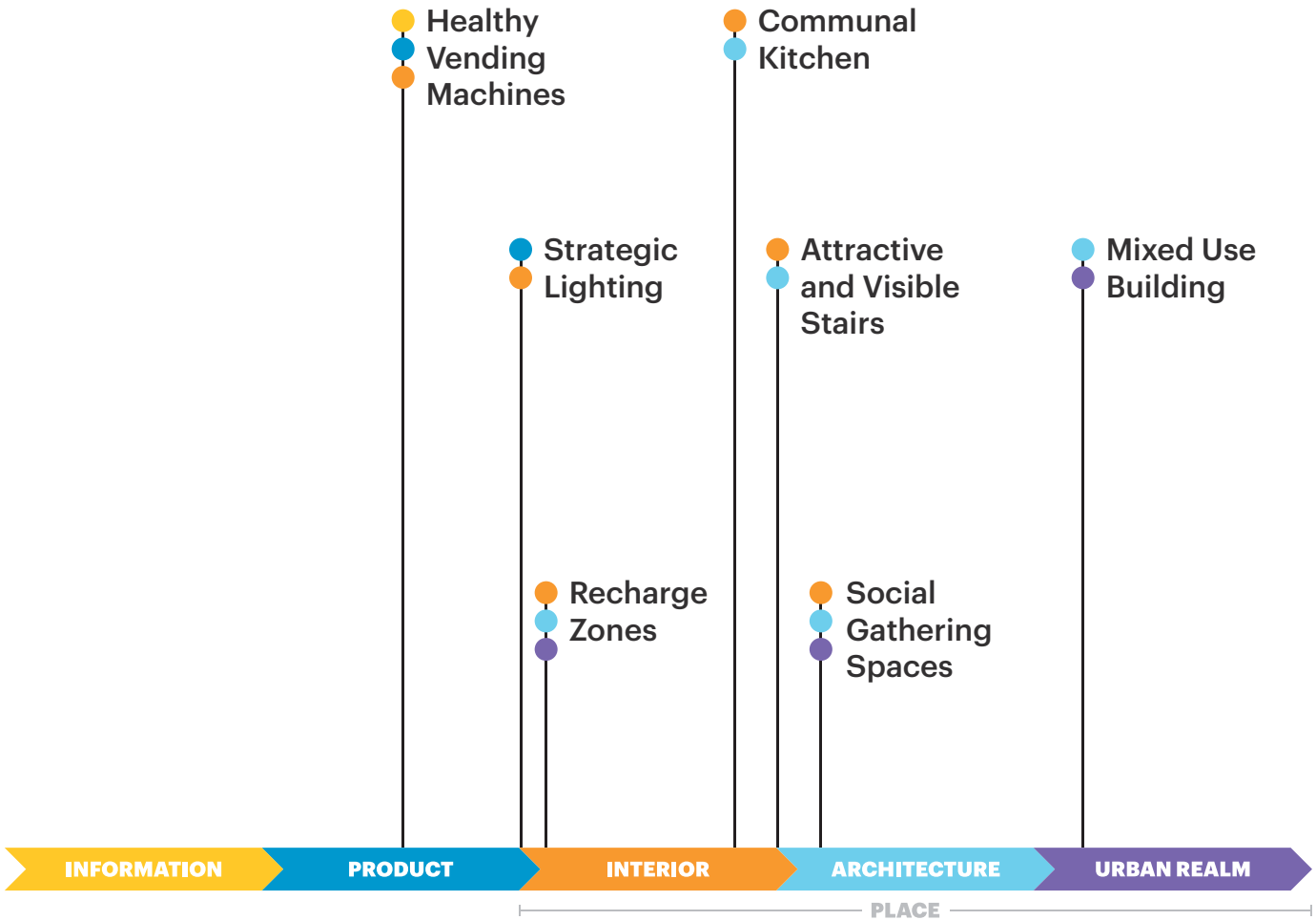
POINT OF DECISION DESIGN BED



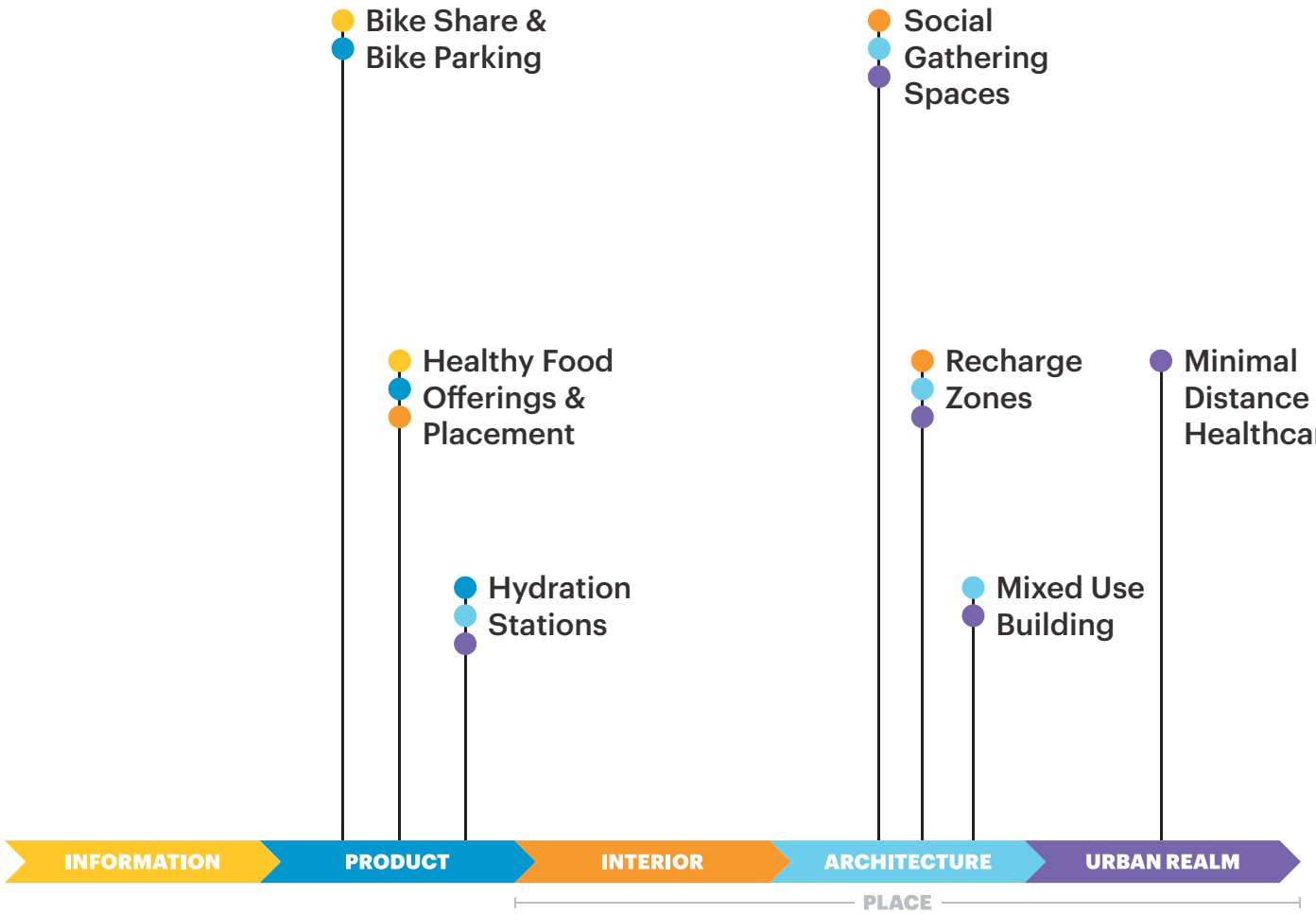
POINT OF DECISION DESIGN CAR

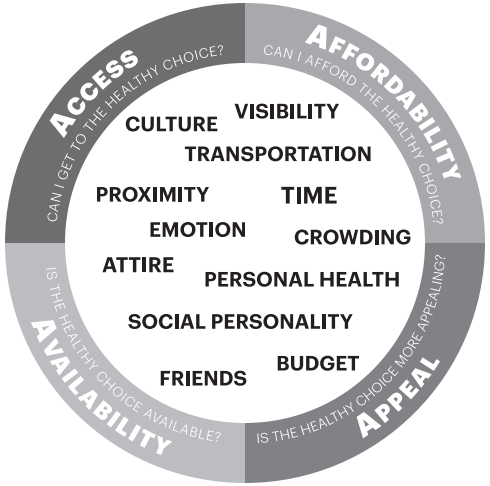


POINT OF DECISION DESIGN CORRIDOR

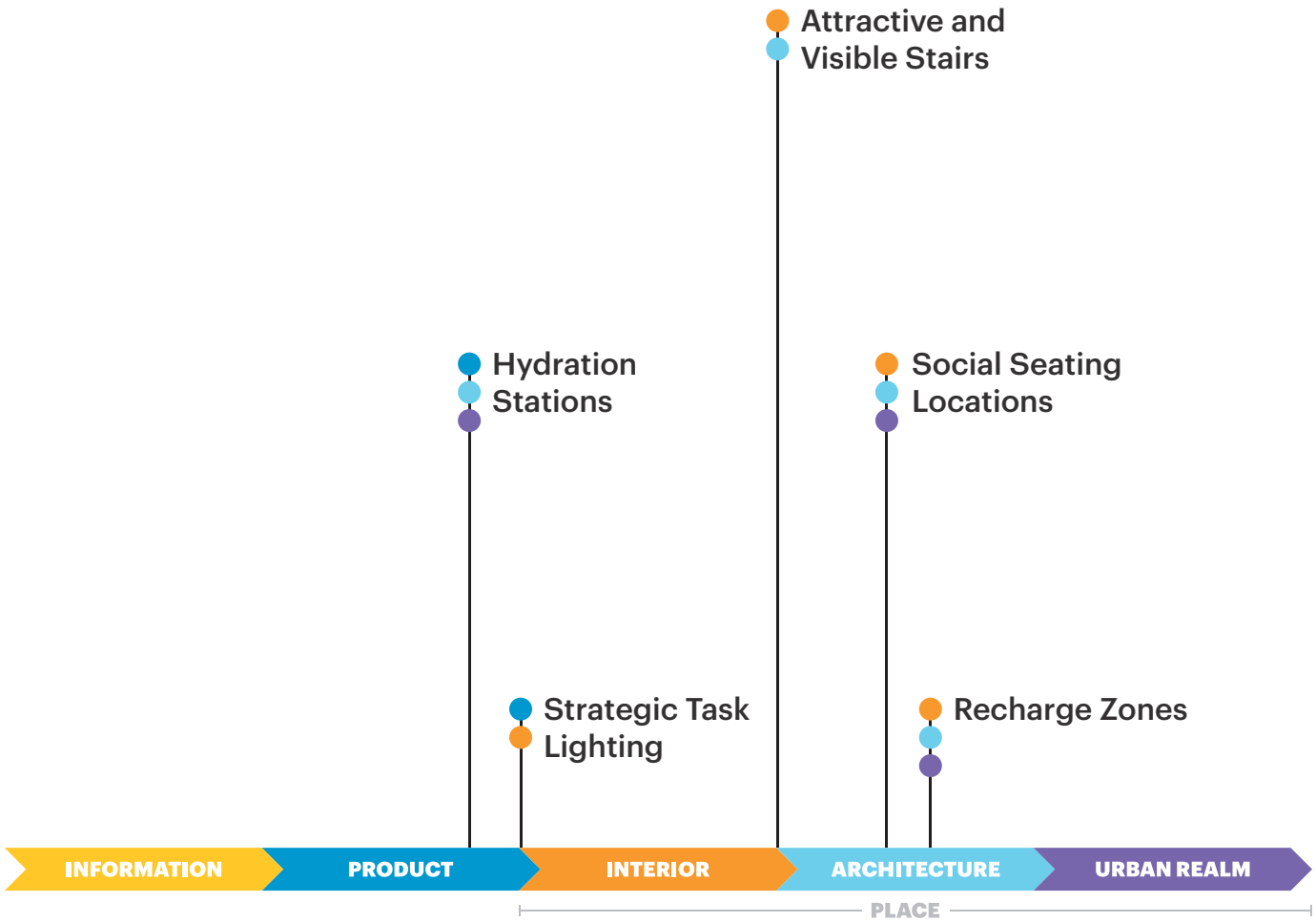


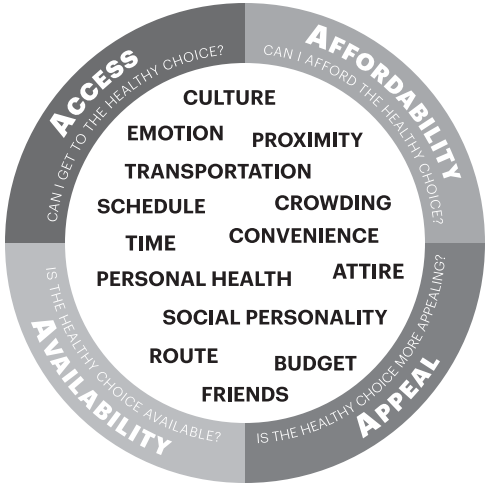
POINT OF DECISION DESIGN REC CENTER



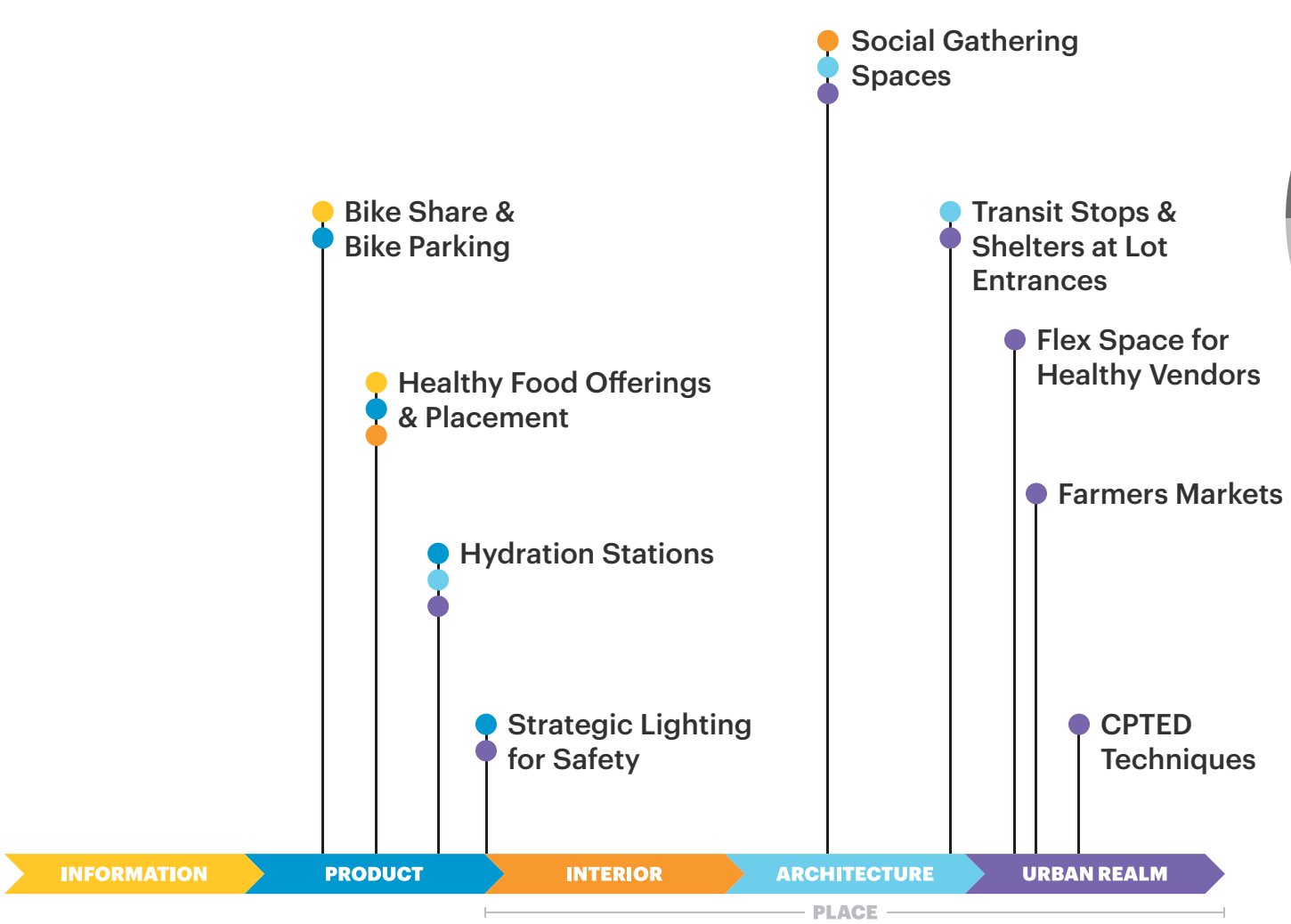


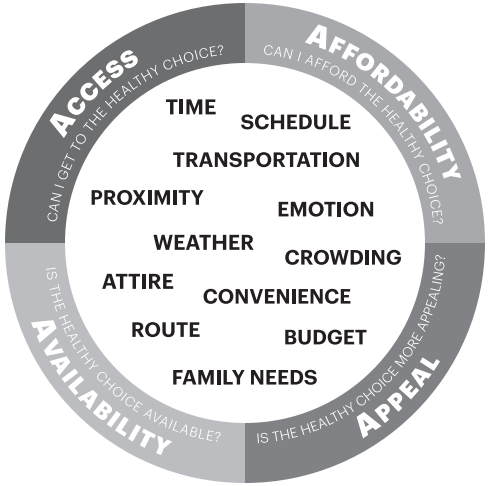
POINT OF DECISION DESIGN CLASSROOM



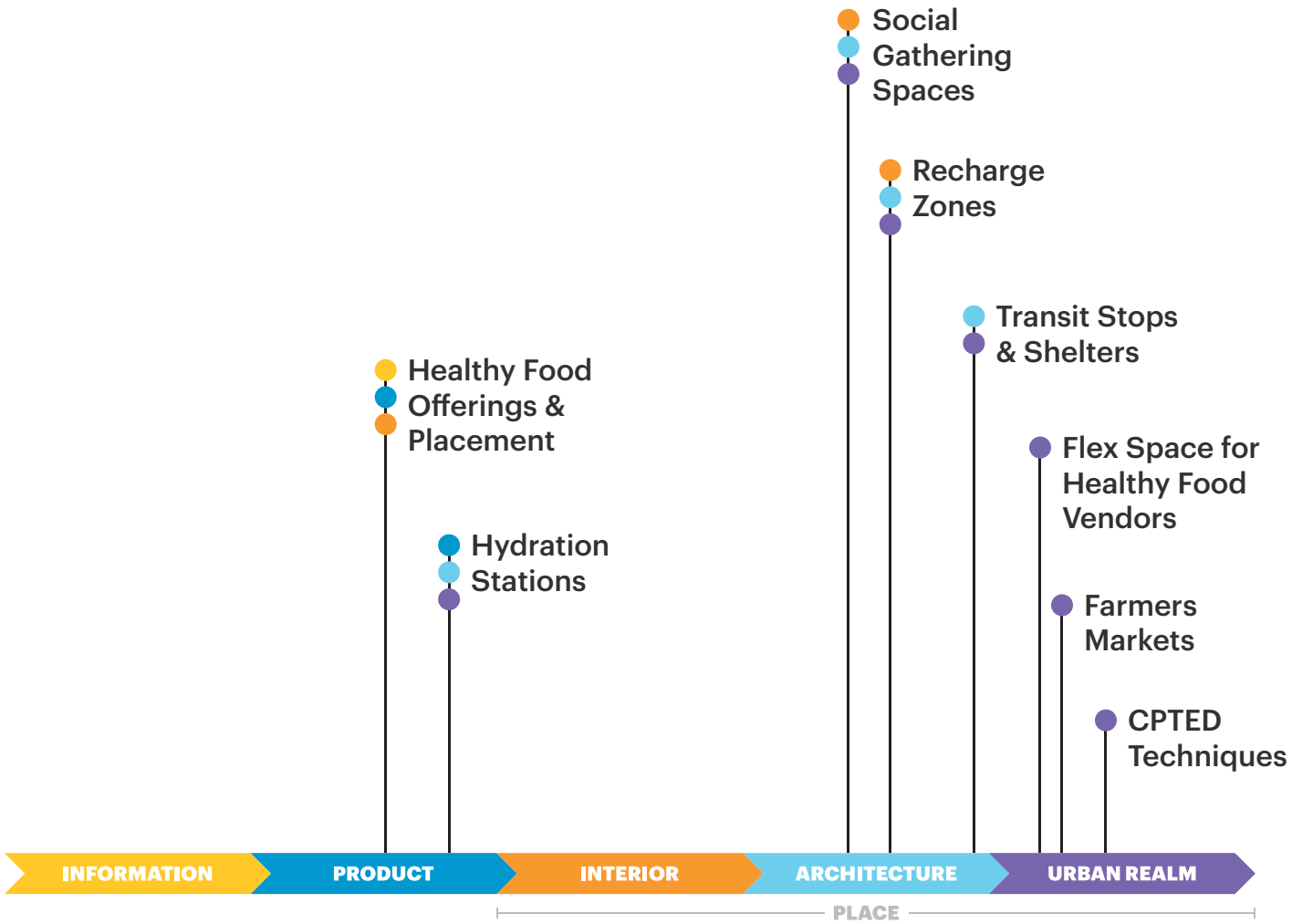


POINT OF DECISION DESIGN PARKING

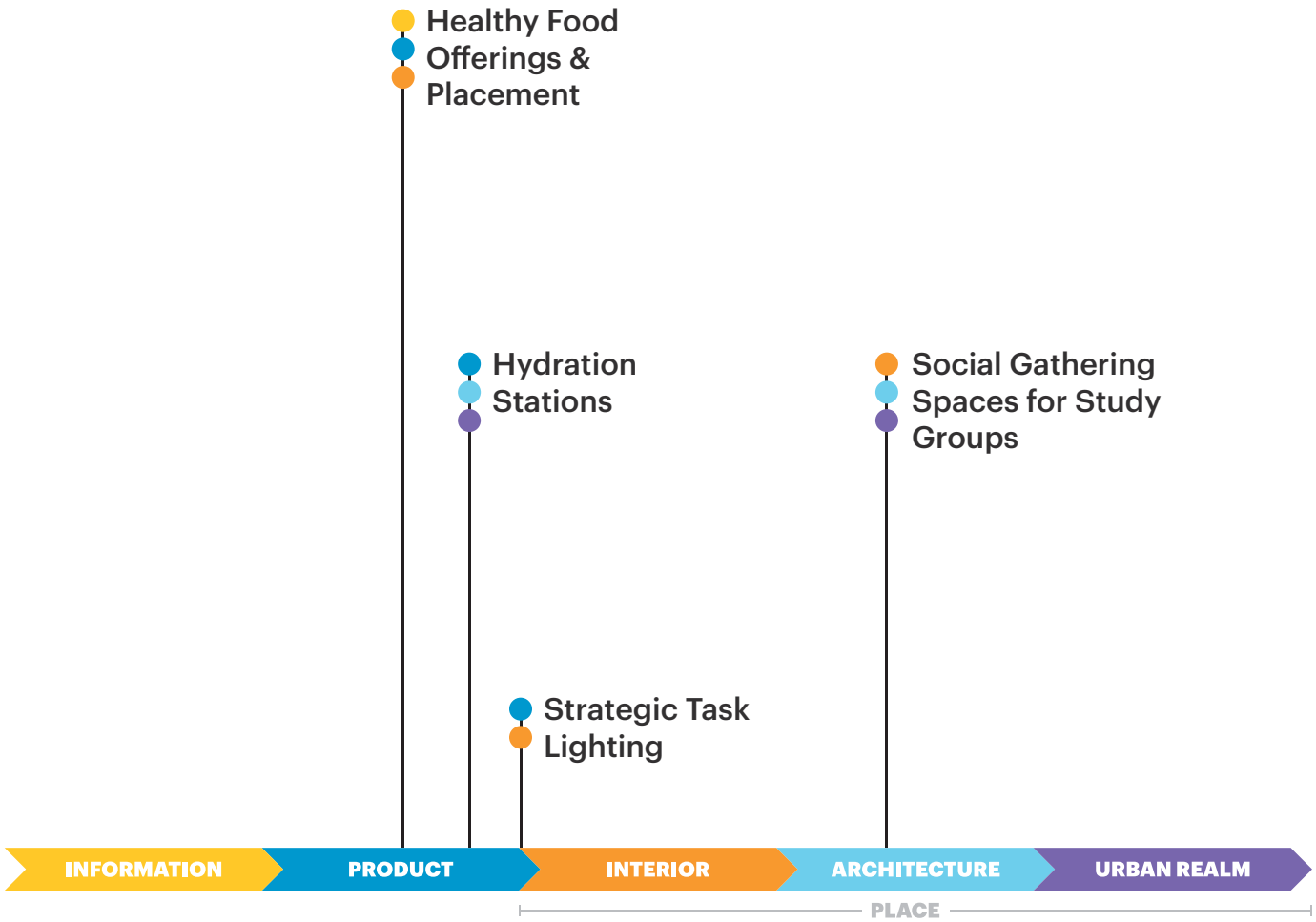


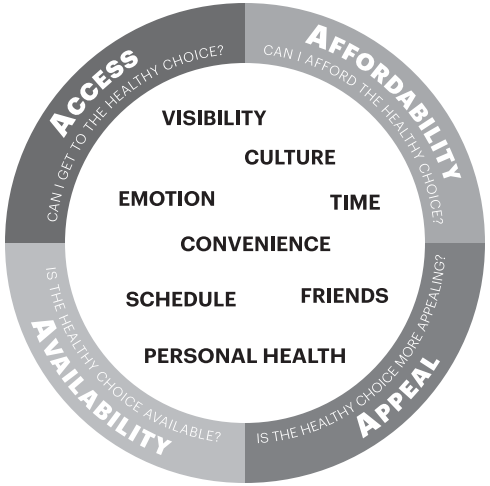


POINT OF DECISION DESIGN PUBLIC SPACE

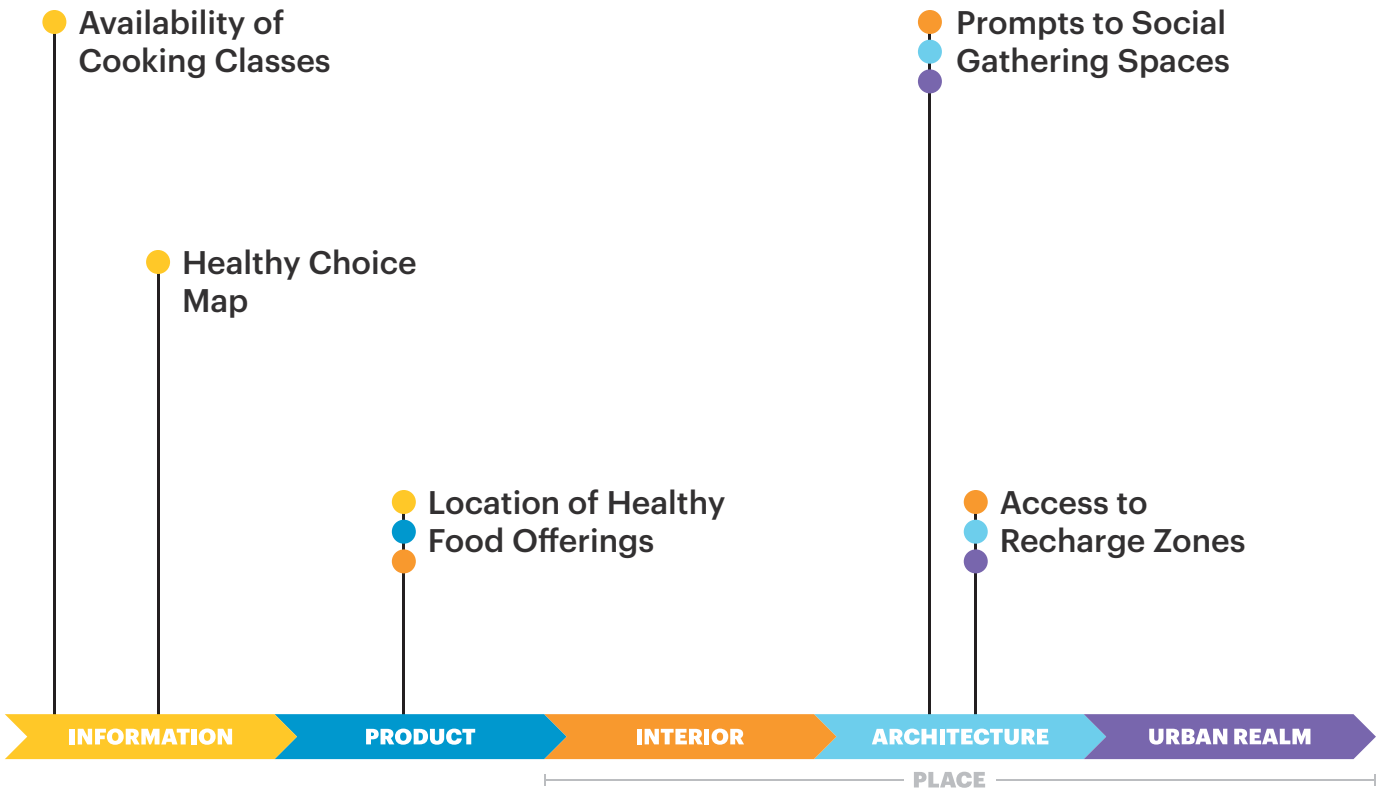


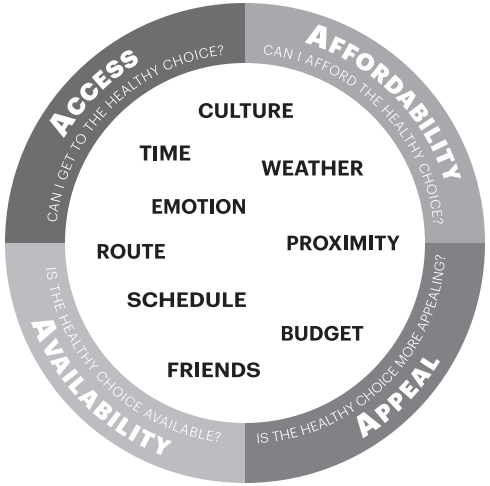
POINT OF DECISION DESIGN WORKSTATION





POINT OF DECISION DESIGN ONLINE





PERSONA + POINTS OF DECISION + DESIGN STRATEGY + INFLUENTIAL FACTORS =

POINTS OF DECISION DESIGN

CRITICAL LINKS

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